Overview
Our extensive experience in the design of outdoor RF transceivers led to the LPOD family’s efficient thermal and mechanical package. Recognizing the evolution of L-Band IF systems, the LPOD is designed to eliminate the traditional requirement for the modem to supply a DC power source and a 10 MHz reference to the BUCs and LNBs. The LPOD’s optional internal reference and LNB bias T greatly simplify multi-carrier operation and provide cost-effective redundant solutions. The LPOD offers valuable features not found in other L-Band BUC products.

Optional Internal 10 MHZ Reference
With the optional high-stability, ovenized reference oscillator (OCXO) installed, one more signal is removed from the TX IF cable. This ensures optimum RF performance of the BUC by eliminating any reference degradation caused by IF combiners, interconnections or rotary joints.

Optional Single and Multi-Band LNB Support
The LPOD was designed with the evolution of L-Band systems in mind. No longer relegated to low power single carrier installations, L-Band IF topologies are now found in larger multi-carrier installations. A challenge presented by multi-carrier L-Band systems is the presence of DC and reference components on the TX/RX L-Band interfaces. The LPOD design, by default, eliminates the DC component from the TX IF and can eliminate the reference requirement with the optional internal OCXO. The LNB bias/reference option completes the solution by eliminating DC and reference signal requirements from the RX L-Band interface. We also offer a high-stability “Multi-Band” Ku LNB facilitating global Ku-Band downlink coverage controlled by the LPOD M&C.

Redundancy
Another challenge addressed by the LPOD topology is the increasing need for redundant L-Band RF solutions. With its internal power supply, internal reference and internal LNB bias capability, the LPOD offers a very cost-effective solution for 1:1 redundant TX and 1:1 redundant RX requirements.

Integrated Power Supply
All LPOD models have a self-contained power supply. This eliminates the requirement for the modem to supply the BUC voltage on the center conductor of the RF cable, simplifying multi-carrier operation and modem spares maintenance.

Data Logging Capability
To greatly enhance system maintainability, the LPOD line includes a built-in data logging capability. By recording critical operational parameters (such as temperature, output power, mute status, etc.) at time stamped intervals, the user can quickly gather intelligence not only about the unit itself, but also the unit’s operational environment.

Advanced FSK
When used with our modems, the LPOD provides valuable additional functionality utilizing the industry standard FSK communications channel. This feature offers full control of single thread and redundant systems from the modem front panel without additional cabling or cost. The LPOD can also be accessed from the Ethernet port of the modem and controlled via Embedded Distant-end Monitor and Control (EDMAC).

Hand-Held Controller Devices
A variety of hand-held controller devices are available. These include the LPODnet M&C Accessory Kit and the CLC-10 M&C Accessory Kit. Both are designed to access the monitor and control functionality of the LPOD family of products.

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Specifications

IF Input Frequency | RF Output Frequency
--- | ---
950 – 1525 MHz | 5.850 – 6.425 GHz
950 – 1750 MHz | 5.850 – 6.650 GHz (optional)
950 – 1825 MHz | 5.850 – 6.725 GHz (optional)
965 – 1265 MHz | 6.725 – 7.025 GHz
950 – 1450 MHz | 7.900 – 8.400 GHz
950 – 1450 MHz | 14.00 – 14.50 GHz
950 – 1700 MHz | 13.75 – 14.50 GHz (optional)
950 – 1450 MHz | 12.75 – 13.25 GHz (optional)

Package-Band | Psat (Typical) | P1dB (Guaranteed)
--- | --- | ---
PS1-Ku | 43 dBm (20 W) | 42 dBm (16 W)
PS1-Ku | 45 dBm (32 W) | 44 dBm (25 W)
PS1-Ku | 46 dBm (40 W) | 45 dBm (32 W)
PS1.5-Ku | 47 dBm (50 W) | 46 dBm (40 W)
PS1.5-Ku | 48 dBm (60 W) | 47 dBm (50 W)
PS2-Ku | 50 dBm (100 W) | 49 dBm (80 W)
PS2-Ku | 51 dBm (125 W) | 50 dBm (100 W)
PS1-C, X | 44 dBm (25 W) | 43 dBm (20 W)
PS1-C, X | 45 dBm (32 W) | 44 dBm (25 W)
PS1-C, X | 46 dBm (40 W) | 45 dBm (32 W)
PS1-C, X | 47 dBm (50 W) | 46 dBm (40 W)
PS1-C, X | 48 dBm (60 W) | 47 dBm (50 W)
PS1.5-C, X | 48.6 dBm (75 W) | 48 dB (60 W)
PS1.5-C, X | 49 dBm (80 W) | 48.5 dBm (70 W)
PS1.5-C, X | 50 dBm (100 W) | 49 dBm (80 W)
PS1.5-C, X or PS2-C, X | 51 dBm (125 W) | 50 dBm (100 W)
PS2-C, X | 51.8 dBm (150 W) | 51 dBm (125 W)
PS2-C, X | 53 dBm (200 W) | 52.5 dBm (175 W)
PS2-C, X | 54 dBm (250 W) | 53 dBm (200 W)
PS2-C | 55 dBm (300 W) | 54 dBm (250 W)

Input Power Supply Requirements: 90 – 264 VAC, 47-63 Hz, Power Factor Corrected, .96 (48 VDC optional)

Gain Min. (Typical) | 70 (75 dB)
Max. IF input level (no damage) | +10 dBm
Gain Adjust | 20 dB in 0.25 dB steps
Gain Flatness | ± 1.5 dB full band (optional ± 2.0 dB full band (-50° to +55°C))
| ± 0.30 dB per 40 MHz (optional ± 0.50 dB per 40 MHz) (-50° to +55°C)
Gain variation over temp | ±1.5 dB max., -.40° to +55°C (optional ± 2.0 dB max. (-50° to +55°C))
Input Return Loss | 15.1 dB (125:1 VSWR)
Output Return Loss | 19.1 dB (125:1 VSWR)
Noise Figure | 10-15 dB typ., 20 dB max. @ min. attenuation, (8 dB typ., 15 dB max. PS2 configured as SSPA only)
RF Mutre Isolation | -60 dBc min.
AM/PM Conversion | 2° typ., 3.5° max. @ Rated P1dB
3rd Order Intermod. Level (2 tones, @ -3 dB Total Back Off from P1dB (-6 dBC SCL), Δ 1 MHz) | -30 dBc typ., -25 dBc Guaranteed
Spurious Level | -50 dBc @ Prated - 3dB
Harmonics | Carrier Related In-band -60 dBc min. @ P1dB
Non-Carrier Related In-band -60 dBc max. (Input Terminated)
LO Leakage | 25 dBc max.
Group delay variation | Linear ± 0.03ns/MHz
| Parabolic ± 1.003 ns/MHz²
| Ripple ± 1.0 ns pk-pk

Notes:
1. All units also available as SSPAs only, without internal L-Band BUC (Freq RF in = Freq RF out).
2. Allow 1 dB degradation from 13.75 to 14.0 GHz and 6425 to 6725 MHz.
3. Available in PS1.5-50/Ku60/Ku levels. Inquire for other power levels.

Data Logging parameters
- Non-Volatile RAM: Capacity 30 days @ 90 minute intervals.
- Includes:
  - RF Output Power
  - Mute Status
  - Heatsink Temperature
  - LNB Bias Current

Phase Noise (dBc/Hz) (with optional internal or equivalent performance external reference)
Typical (C/X/Ku) | Spec (C/X/Ku) dBc/Hz
--- | ---
Offset = 100 Hz | -79/78/76
| -72/72/69
1 KHz | -91/-87/-85
| -84/-84/-82
10 KHz | -105/-104/-98
| -97/-97/-90
100 KHz | -120/-114/-114
| -107/-107/-102
1 MHz | -132/-132/-132
| -115/-115/-115

Optional Internal Reference
- Internal Reference 10 MHz (Can lock to modem supplied reference
- Oscillator Frequency over a range of -5 dBm to +5 dBm at IF Input)
- Frequency Stability ± 5 x 10⁻⁶ / day
| ± 1 x 10⁻⁹ (± 90° to +55°C)

Optional LNB Bias/Reference
- LNB Bias Voltage
  - Software selectable tone on/off, 12/18V, 450mA max.
- LNB 10 MHz Reference Output Level 0 dBm ± 5 dB
- LNB Input/Output Return Loss 15 dB
- LNB Input/Output Gain 10 dB ± 2 dB (950 – 1750 MHz)
- LNB Input/Output Gain Flatness ± 1 dB (950 – 1750 MHz)
- LNB Input/Output Isolation (Mute condition) 55 dB min.

Environmental & Physical
Temperature
- Operating -40° to 131°F (-40° to 55°C)
  - (optional -50° to 55°C or -40° to +60°C)
- Storage -67° to 167°F (-55° to 75°C)
- Humidity 100% condensing rain 2” per hour
- Altitude 10,000 AMSL
- Ingress Protection Designed for IP 66 (Dust tight, strong water jets)
- Shock Normal commercial shipping and handling
- Weight / Dimensions (height x width x depth (in. excluding connectors))
  - PS1,1.5 17 lbs Nominal / 7.37” x 6.26” x 12.65”
  - PS2 47 lbs Nominal / 9.78” x 8.80” x 16.81”

Connectors
- IF/RF Input Type N, female, 50 ohm
- RF Output PS1, C-Band: Type N, female, 50 ohm
  - PS1.5/PS2, C-Band: CPR137G
  - PS1/PS2, Ku-Band: CPR112G
  - PS1/PS2 Ku-Band: WR75G
- LNB Bias Type N, female

Supported Interface
- RS-232/485 Ethernet (includes built-in HTML pages, SNMP, Telnet)
- Standard “Smart BUC” FSK Advanced FSK (provides full front panel control when integrated with select Comtech EF Data modems)

M&C/Ethernet/Redundancy Switches
- 19-pin MS Style (Single Integrated cable assembly available, dependent upon configuration)