



P310/P310 Turbo

L-Band Satellite Modem



**PARADISE
DATACOM**

AN INTELEK PLC COMPANY



OVERVIEW

The P310 and P310 Turbo are L-Band versions of the popular P300 Series Modems. These provide the same full Modem feature set together with a direct L-Band 'radio' interface. When coupled with a Paradise Datacom (or other suitable) Block Up-Converter (BUC), the P310 Modem becomes a low cost terminal, to which only a dish needs to be added to form a complete earth station. The P310 can provide the power (depending on BUC size) and reference frequency needed by the BUC, as well as provide power to the LNB in the receive path. With additional menu features such as the ability to set the actual transmit and receive frequencies at the dish, from the modem, the P310 Turbo is the most configurable, cost effective, L-Band Satellite Modem available.

FEATURES

- ▶ Highly configurable (field upgradeable) feature set - **See table at rear of datasheet**
- ▶ 4.8kbps to 5.0Mbps in 1bit per second steps
- ▶ Operates in L-Band 950 to 1750Mhz (2150MHz optional) in 100Hz steps
- ▶ 15V/24V D.C @ 500mA LNB power supply. 24V or 48V 100W BUC power supply (option)
- ▶ LNB, BUC, SSPA reference frequency provided by internal 10MHz oscillator.
- ▶ Higher stability internal oscillators (option)
- ▶ BPSK, QPSK and OQPSK operation (8PSK optional)
- ▶ Multi-rate Viterbi, Reed-Solomon, Sequential and Turbo (options)
- ▶ RS422, V.35 & RS232 interfaces (G.703 and Eurocom D1 interfaces optional)
- ▶ IBS or IDR framing (options)
- ▶ Fully variable rate ESC channel for Closed Net plus ESC operation (option)
- ▶ Drop & Insert and Extended Drop & Insert (options)
- ▶ Internal BER tester and Monitor AGC port (options)
- ▶ Automatic Uplink Power Control (AUPC option)
- ▶ Built-in 1:1 Redundancy Controller

ASSOCIATED PRODUCTS

- ▶ P500 1:8 Redundancy Switch
- ▶ P300 Turbo Satellite Modem
- ▶ P311 Tx IF with L-Band Rx Satellite Modem
- ▶ P300i Internet Modem
- ▶ P310i L-Band Internet Modem
- ▶ Transceivers, BUCs and SSPAs

A detailed technical specification is available from the Paradise Datacom website www.paradisedata.com



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L-Band Satellite Modem

STANDARD CONFIGURATIONS AND USER OPTIONS

www.paradisedata.com

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Option	P310 VSAT	P310 IBS	P310 IDR	P310 TCM	P310 USER	Description
Base Modem	✓	✓	✓	✓	✓	BPSK/QPSK/OQPSK, 4.8kbps to 512kbps, 1bps variable rate closed network modem RS422 / V.35 / RS232 selectable interface with 25 pin EIA530 DCE & 37 pin RS449 DCE connectors 950MHz - 1750MHz IF interface with 100Hz resolution. 1 x 10 ⁻⁶ Internal Reference
Viterbi FEC	✓	✓	✓	✓		Viterbi FEC (to IESS 308/309), rate 1/2, 3/4 & 7/8 in BPSK, QPSK and OQPSK
Sequential FEC						Sequential FEC (to IESS 312), rate 1/2, 3/4 & 7/8 in BPSK, QPSK, OQPSK
Turbo FEC (TPC)						P308 Turbo Product Codec (TPC). Including 1/2, 3/4, 7/8, 21/44 & 5/16 rates
INTELSAT Reed-Solomon		✓	✓	✓		Reed-Solomon outer FEC (to IESS 308/310), with n, k, t = 126, 112, 7 (switches to 225, 205, 10 or 219, 201, 9 with 4/8 deep interleaving as required for IDR & TCM/IDR if options are fitted)
Wideband IF		✓	✓	✓		Wideband 950MHz-2150MHz L-Band interface instead of 950MHz-1750MHz (Tx subject to revised spec above 1750MHz)
High Data Rates		✓	✓	✓		Data rates 512kbps - 5Mbps in addition to Base Modem rates
Async ESC		✓	✓	✓		Variable rate ESC channel for Closed Net plus ESC operation High rate IBS/SMS ESC (with IBS/SMS option) Async ESC access to IDR 8k sync ESC channel (with IDR option)
IBS/SMS		✓	✓	✓		IBS/SMS framing (to IESS 309) with low rate Intelsat ESC (to IESS 403)
Drop / Insert		✓	✓	✓		Normal T1/E1 linear order Drop/Insert. D/I can operate with any modem interface, although G.703 is typically required (separate option)
IDR			✓	✓		IDR operation (to IESS 308): Two audio ESC channels Sync 8kbps ESC Four form 'C' backward alarms 32/64kbps Aux data in place of one/both audio ESC P1348 Emulation, uses IDR ESC ports to emulate P1348/P1448 cards used in SNG applications Generates 64kbps carrier of 2 x 32kbps ADPCM audio (using IDR ESC Ports for audio interface) or 128kbps carrier of 64kbps data plus 2 x 32kbps ADPCM audio
PRBS Tester			✓	✓		Internal Bit Error Rate Tester (BERT) can run through main data channel, or ESC/Aux channels
8PSK/TCM				✓		8PSK with 2/3 rate Trellis Code Modulation (TCM, to IESS 310)
Extended D/I				✓		Independent timeslot re-ordering on Tx & Rx. Signalling (CAS for E1 & RBS for T1). Rx Partial Insert for multi-destinational working. Timeslot ID maintenance for N=1 to 31 with IBS/SMS or Closed Net plus ESC operation
Custom Features				✓		Arbitrary 'n' & 'k' for Reed-Solomon (with Reed-Solomon option). Custom & Min O/H framing modes (with IBS/SMS or IDR options). Custom allocation of IBS/SMS overhead between Async ESC / sync Aux channels (requires IBS/SMS option AND IDR option to provide Aux Port).
AUPC						Auto Uplink Power Control (AUPC). Uses part of Async ESC channel bandwidth to communicate with distant modem and monitor distant Rx Eb/No. Automatically adjusts local Tx power within set power and slew rate limits to maintain target distant Eb/No. Requires Async ESC feature in order to operate over Closed Net Plus ESC, IBS, or IDR services.
Monitor / AGC						Demod Rx carrier signal level monitor. 0-10V Analogue output of carrier signal level, Eb/No, or Rx offset frequency (in addition to normal AGC output). Constellation monitor port
1544kbps G.703						1544kbps G.703 interface in addition to RS422 / V.35 / RS232 interface (software selectable)
2048kbps G.703						2048kbps G.703 interface in addition to RS422 / V.35 / RS232 interface (software selectable)
Eurocom D/I						Eurocom D: <16kbps to >2048kbps AMI coded (not limited to Eurocom rates) Eurocom G: 16kbps or 32kbps diphas coded Eurocom D & G interface (D25 male) in addition to RS422 / V.35 / RS232 interface (D25 female) (Eurocom selected by grounding control pins, other interfaces software selectable. No 1:1 on Eurocom interfaces.)
Tx IF with Rx L-Band						Convert Tx IF to 50-90MHz, with Rx at L-Band (e.g. for SNG: 70MHz Tx IF combining with Video feed then upconverting, but with simple L-Band interface to LNB for monitoring)
7 x 10 ⁻⁷ internal ref						P313B Medium stability Frequency/Clock internal reference, 7 x 10 ⁻⁷ per year
1 x 10 ⁻⁷ internal ref						P313C High stability Frequency/Clock internal reference, 1 x 10 ⁻⁷ per year
7.5 x 10 ⁻⁸ internal ref						P313D Very High stability Frequency/Clock internal reference, 7.5 x 10 ⁻⁸ per year
24V 4A ODU PSU						P315 24V 4A Switchable DC to Tx BUC/SSPA (in addition to standard modems 0.5A on Rx to LNB)
48V 2A ODU PSU						P317 48V 2A Switchable DC to Tx BUC/SSPA (in addition to standard modems 0.5A on Rx to LNB)
FSK Control						P314 Controls and monitors single-box Paradise Datacom BUCs from the Modem

For a user-defined mix of options, please mark up the P310 USER column with your requirements and fax to your sales representative or directly to Paradise Datacom
Please also contact us for other options such as a cost

reduction for single or dual fixed data rates, or transmit / receive only operation.
A P310i L-Band Internet version is available including a direct Ethernet port with a TCP/IP Router all integrated in a 1U

shelf. Please consult the separate P310i data sheet.
A full compliment of RF equipment including BUCs, SSPAs, LNAs and LNBs is also available.

P310 Quotation Request

Product: P310 - _____
Quantity: _____
Timescale: _____
Project Name: _____
Delivery/Final Country: _____
Your Name: _____
Title/Dept: _____

Company: _____
Address: _____
Address/Zip: _____
Country: _____
E-Mail: _____

Telephone: _____
Fax: _____
Comments or Special Requirements: _____

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