

LOW BITRATE SATELLITE DEMODULATOR (LBRSD)



SPECIFICATIONS

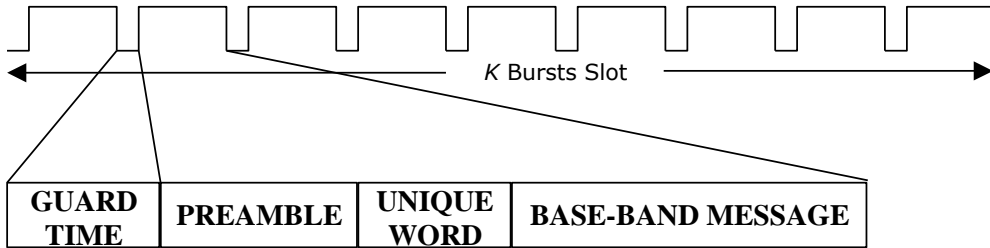
Continuous mode:

- Modulation: BPSK/ QPSK
- Data rate:
 - BPSK: 300bps, 600 bps, 1200 bps, 2.4kbps, 4.8kbps, 5.4kbps, 9.6kbps, 10.8kbps
 - QPSK: 1.2kbps, 2.88kbps, 4.8kbps, 9.6kbps, 10.8kbps, 19.2kbps, 16kbps
- Analog Interface: IQ at 50 kHz, 0.3 - 3Vp-p
- Ambiguity decoder: Differential Decoding
- FEC: Rate 1/2 (Viterbi) decoder with constraint length $K=7$
- BER: 1×10^{-6} at $E_b/N_0 = 6.1$ dB
- De-scrambler: CCITT V.35
- Built-in I/Q imbalance compensation and E_b/N_0 indication
- Data interface: TTL, Synchronous, data valid on rising edge of clock
- Size: 3"x3"
- Power consumption: 1W (operational) and 1.5W (programming) from 5V dc supply
- Operating temperature and humidity: 0 to 50°C, 95% RH at 45°C
- Processor: TMS320F2811
- Integration: Polarized dual row connectors and control lines for power save/ down

Baudrate	BPSK			QPSK		
	Threshold E_b/N_0	Acquisition range	Acquisition time	Threshold E_b/N_0	Acquisition range	Acquisition time
21600	3.5 dB	± 5 kHz	4s	–	–	–
16000	–	–	–	3.0 dB	± 2.5 kHz	5s
10800	3.5 dB	± 5 kHz	4s	4.0 dB	± 2.5 kHz	5s
19200	3.5 dB	± 5 kHz	4s	3.5 dB	± 2.5 kHz	5s
9600	3.5 dB	± 5 kHz	4s	4.5 dB	± 2.5 kHz	5s
4800	3.5 dB	± 5 kHz	4s	5.0 dB	± 2.5 kHz	5s
2880	–	–	–	5.5 dB	± 2.5 kHz	6s
2400	3.5 dB	± 5 kHz	4s	–	–	–
1200	6.0 dB	± 5 kHz	4s	6.0 dB	± 1.25 kHz	8s
600	6.0 dB	± 2.5 kHz	8s	–	–	–

Burst mode:

- Modulation: BPSK/QPSK
- Data rate:
 - BPSK: 300bps, 600bps, 1.2kbps, 2.4kbps, 4.8kbps, 5.4kbps
 - QPSK: 300bps, 2.88kbps
- Analog Interface: IQ at 50 kHz, 0.3 - 3Vp-p
- FEC: Rate 1/2 (Viterbi) decoder with constraint length $K=7$
- Error-free burst performance: 99% @ 7dB E_b/N_0
- De-scrambler: Synchronous descrambler, with polynomial $1+X+X^{15}$
- Data interface: TTL, Synchronous, data valid on rising edge of clock
- Size: 3"x3"
- Power consumption: 1W (operational) and 1.5W (programming) from 5V dc supply
- Operating temperature and humidity: 0 to 50°C, 95% RH at 45°C
- Processor: TMS320F2811
- Integration: Polarized dual row connectors and control lines for power save/ down
- Acquisition range:
 - BPSK: ± 4.7 kHz for 300bps, 600bps bitrates and ± 5 kHz for other bitrates
 - QPSK: ± 2.3 kHz for 300bps and ± 5 kHz for 2.88kbps
- Burst Format:



MINIMUM GUARD TIME	- 192 bits
PREAMBLE [all zeros]	- 256 symbols (including carrier recovery symbols)
	Preamble - 192 symbols
	Carrier recovery - 64 symbols
UNIQUE WORD	- 64 bits (07EA CDDA 4E2F 28C2)
BASE-BAND MESSAGE	- up to 128 16-bit words

- Burst timing:

