

LBR-2195A



Embedded L-Band Single Input Beacon Receiver Module

- Track L-Band CW Beacon Carrier; BPSK Carrier
- Synthesized Direct conversion tuner system
- Serial text-based API interface for easy implementation with simple embedded processors
- Comprehensive API on USB for easy development
- Extended Temperature Range
- Low SWaP-C
- Two enclosure options available

The LBR-2195A is a satellite beacon receiver that provides DC output voltage proportionate to the input RF signal level over L-Band. The receiver will remain locked on the CW carrier signal and provide the DC output voltage relative to input RF level at the tuned center frequency.

The LBR-2195A can also lock on and track BPSK type modulated carriers signals with excellent performance. Typical time-to-lock period is <3 seconds.

The LBR-2195A has been designed with the systems integrator in mind for satellite antenna and uplink power controller systems. The small form-factor is ideal for low-profile and restricted spaces.

LBR-2195A - TECHNICAL SPECIFICATIONS

RF SPECIFICATIONS	
INPUT CONNECTORS:	SMA, 50 Ohm, DC Blocked to 25V
INPUT FREQUENCY RANGE:	950 to 2150 MHz
TUNING STEP SIZE:	1kHz
INPUT LEVEL RANGE:	-30 to -90 dBm
MAXIMUM INPUT POWER LEVEL:	-20 dBm max
DETECTION BANDWIDTH:	10 to 750 kHz
TRACKING BANDWIDTH:	10 to 150 kHz
DETECTED LEVEL FILTERING:	Low-Pass, User-Select: 0.25 Hz, 0.5 Hz, 1.0 Hz, 2.0 Hz, 3.0 Hz
SEARCH/TRACK RATE:	User-Selectable: 10 Hz
ACQUISITION TIME:	<1 second typical
ADJUSTABLE DELAY BEFORE LOCK:	0 to 5000 milliseconds
ACQUISITION/TRACKING LEVEL:	Minimum C/No, 39 dB-Hz
BEACON/CARRIER TYPE:	CW, BPSK (No Demod), CEPT(Carrier-Edge-Power-Track) on DVB (No Demod)

COMMUNICATION INTERFACE	
SERIAL:	RS422, RS232, and RS232 Data Stream, 115200 8n1, (DB-25 Male)
USB:	115200 8n1, (DB-25 Male)
BEACON RECEIVER OUTPUTS:	Analog and Digital outputs, (DB-25 Male)

M & C				
	EVO GUI	POSIX-C API SBS2API	TEXT-BASED API	WEB-GUI
SERIAL:	N/A	Yes	Yes	N/A
USB:	Yes	Yes	Yes	N/A

LBR-2195A - TECHNICAL SPECIFICATIONS CONTINUED

RECEIVER OUTPUTS	
CONNECTOR:	DB-25 Male
ANALOG SIGNAL STRENGTH INDICATOR OUTPUT:	0 to 10 VDC, 10 mA
ANALOG SLOPE:	0.1 to 3.0 Volts/dB
ANALOG SLOPE POLARITY:	Positive or Negative
ANALOG OUTPUT FILTERING:	Low-Pass, 0.5 Hz, fixed.
DIGITAL LOCK INDICATOR OUTPUT:	0 - 3.3 VDC
DIGITAL LOCK INDICATOR OUTPUT POLARITY:	Adjustable (H=LOCK or L=LOCK)
ALARM RELAY	Form C, NC and NO

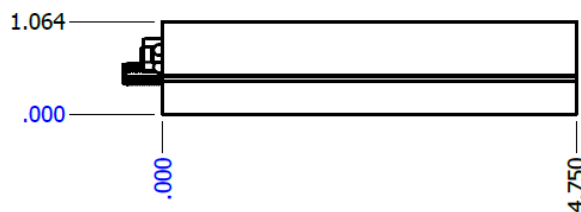
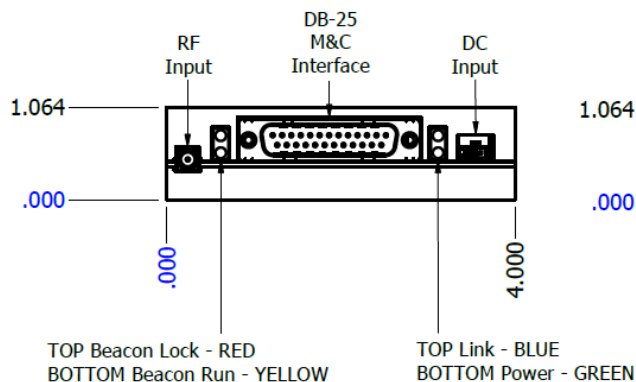
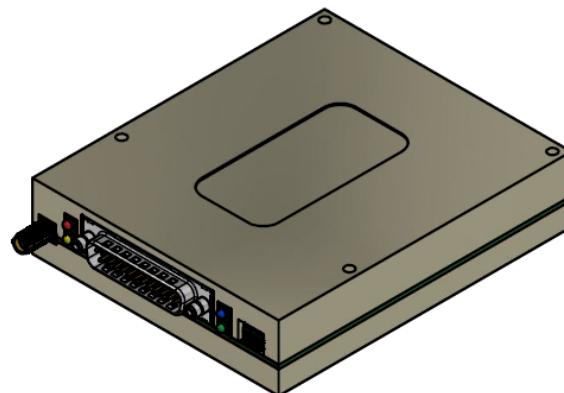
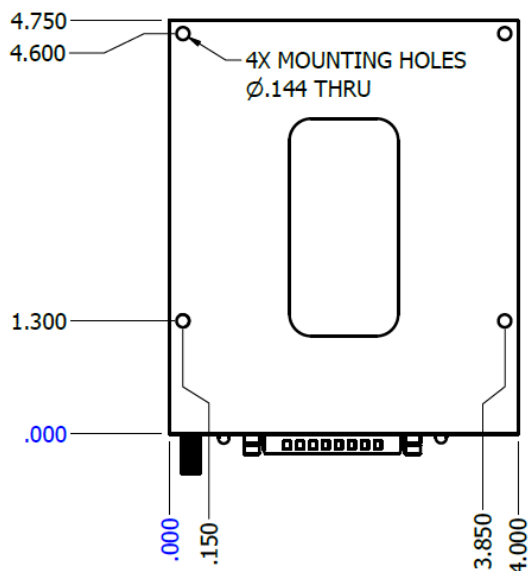
POWER	
CONNECTOR:	2-pin Molex
POWER SUPPLY:	8.0 - 33.0 VDC, <3 W with reverse polarity, surge, and spike protection
PHYSICAL	
DIMENSIONS:	BLK: (4.75"L x 4"W x 1.07"H) CLM: (5.5"L x 4.5"W x 0.94"H)
WEIGHT:	BLK: 13oz; 368.5g CLM: 12oz; 340g

ENVIRONMENTAL	
OPERATING TEMPERATURE:	-30° C to 60° C
STORAGE TEMPERATURE:	-40° C to 85° C
HUMIDITY:	0 to 95%, non-condensing

ORDERING OPTIONS

MODEL OPTIONS		
PRODUCT NAME	-	OPTION
LBR-2195A	-	BLK: Nickel Plated Machined Blocks
		CLM: Painted Metal enclosure

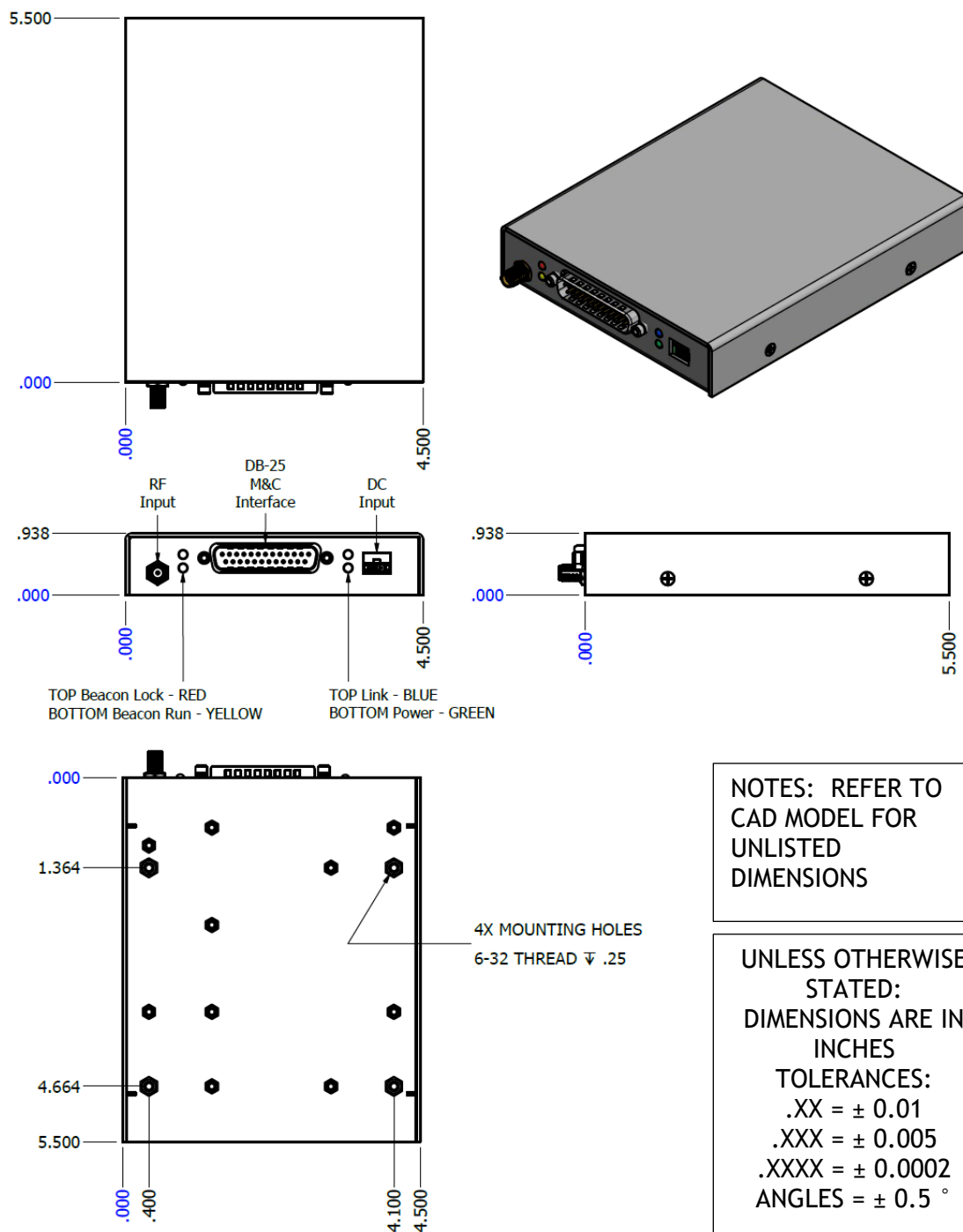
LBR-2195A PHYSICAL DIMENSIONS LBR-2195A-BLK Enclosure



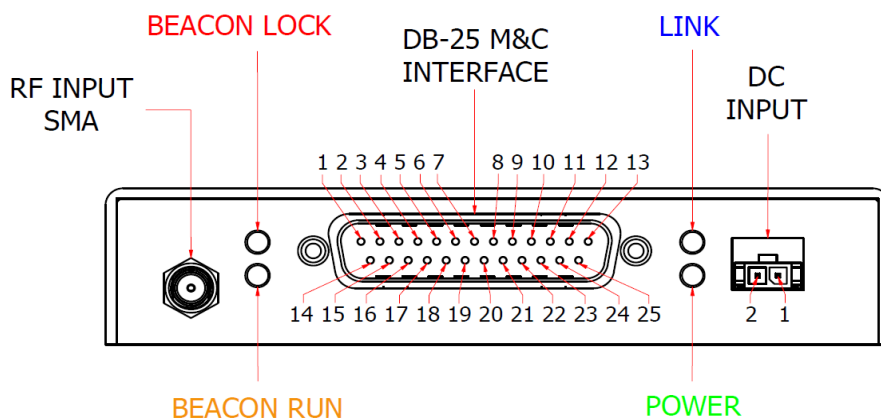
NOTES:
REFER TO CAD MODEL FOR UNLISTED
DIMENSIONS

UNLESS OTHERWISE STATED:
DIMENSIONS ARE IN INCHES
TOLERANCES:
.XX = ± 0.01
.XXX = ± 0.005
.XXXX = ± 0.0002
ANGLES = $\pm 0.5^\circ$

LBR-2195A PHYSICAL DIMENSIONS LBR-2195A-BLK Enclosure



LBR-2195A PIN POSITIONS AND DESCRIPTIONS



DB-25 M&C INTERFACE

PIN	FUNCTION
1	Beacon Analog Out 0-10V
2	Beacon Run Out
3	Beacon Lock Out
4	Relay NC
5	Relay NO
6	RFU
7	RS422 TX N
8	RS422 RX N
9	Ground
10	USB P
11	Ground
12	RS232 DataStream TX
13	RS232 TX
14	Ground
15	Ground
16	Ground
17	Relay C
18	RFU
19	RFU
20	RS422 TX P
21	RS422 RX P
22	Ground
23	USB N
24	Ground
25	RS232 RX

POWER

PIN	FUNCTION
1	Power In
2	Ground

Note: Drawing is of CLM option but pinout of BLK is the same.

LBR-2195A PIN INTERFACE

MATING CONNECTORS

DB-25 Female	25-pin	DB25S064TLF
POWER	2-pin	Molex: 0436450200
CRIMP PIN		Molex: 0430300002
CRIMPING TOOL		Molex: 0638190000
WIRE		20-24 AWG

Connector Name	Pin Number	Function Name	I/O Type	Recommended Interface Circuit/Voltage	Limiting Voltages and Protection Notes
POWER	1	POWER IN	Power Supply Input	8.0V to 33.0V DC Power	DC Reverse Polarity Protected to -100VDC. Surge Protected to +100V.
	2	GND	Power Supply Ground	0V	

Connector Name	Pin Number	Function Name	I/O Type	Recommended Interface Circuit/Voltage	Limiting Voltages and Protection Notes
DB-25 M&C Interface (BR Outputs)	1	Beacon Analog Out 0-10V	Analog Output 0V to 10V	Analog Input with 1kohm or Greater Input Impedance	Protected to +/- 40V. Short-to-Ground Protected.
	2	Beacon Run Out	Digital Output 0V to 3.3V	Digital Input with 1kohm or Greater Input Impedance	
	3	Beacon Lock Out			
	14	Ground	Ground Reference	0V	--
	15	Ground			
	16	Ground			
DB-25 M&C Interface (Relay)	4	Relay NC	FORM C Relay	Remote Alarm Circuit	Max 48VDC 0.5A
	5	Relay NO			
	17	Relay C			
DB-25 M&C Interface (RFU)	6	RFU	N/A	Open Circuit	--
	18	RFU			
	19	RFU			

LBR-2195A PIN INTERFACE - CONTINUED

Connector Name	Pin Number	Function	I/O Type	Recommended Interface Circuit/Voltage	Limiting Voltages and Protection Notes
DB-25 M&C Interface (RS232)	13	RS232 TX	Communications Output	Connect to User Equipment RS232 RX	-0.03V Absolute Min to 6.0V Absolute Max Voltage. Limited by Transceiver IC
	24	Ground	Ground Reference	0V	--
	25	RS232 RX	Communications Input	Connect to User Equipment RS232 TX	+/- 25V Absolute Max Voltage Input. Limited by Transceiver IC
DB-25 M&C Interface (RS232-DS)	11	Ground	Ground Reference	0V	--
	12	RS232 Datastream TX	Communications Output	Connect to User Equipment RS232 RX	-0.03V Absolute Min to 6.0V Absolute Max Voltage. Limited by Transceiver IC
DB-25 M&C Interface (RS422)	7	RS422 TX N	Communications Output	Connect to User Equipment RS422 RX N	-8V Absolute Min to 12.5V Absolute Max Voltage. Limited by Transceiver IC.
	8	RS422 RX N	Communications Input	Connect to User Equipment RS422 TX N	
	9	Ground	Ground Reference	0V	--
	20	RS422 TX P	Communications Output	Connect to User Equipment RS422 RX P	-8V Absolute Min to 12.5V Absolute Max Voltage. Limited by Transceiver IC.
	21	RS422 RX P	Communications Input	Connect to User Equipment RS422 TX P	
DB-25 M&C Interface (USB)	10	USB P	Communications I/O	USB 2.0 0V-5V	0V Min. 5V Max. Limited by USB ESD steering diode array and power rails for USB IC.
	22	Ground	Ground Reference	0V	--
	23	USB N	Communications I/O	USB 2.0 0V-5V	0V Min. 5V Max. Limited by USB ESD steering diode array and power rails for USB IC.

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