

MBX-3

2 Channel Automatic Differential Beacon Receiver

FEATURES

- Dual independent channels for superior automatic beacon tracking
- State-of-the-art digital architecture enhances beacon reception
- Fast acquisition times ensure you are up and running quickly
- 2-line by 16-character LCD display provides more information simultaneously
- Global beacon table listing gives you quick access to beacons by name
- Low power consumption gives extended battery life for portable applications
- Automatic and manual tune modes provide operational versatility
- Optional internal splitter and GPS signal output port for use with combination GPS/beacon antennas
- Firmware upgrades are easily loaded into the receiver through the serial port
- Wide selection of antennas available



Standalone Radiobeacon Receiver

Advanced Beacon Receiver Technology

The CSI MBX-3 beacon receiver employs CSI's third generation of digital receiver technology to receive free DGPS signals broadcast by the networks of 300 kHz radiobeacons deployed worldwide.

Using these signals, the MBX-3 beacon receiver outputs differential correction data in the industry standard RTCM SC-104 format accepted by differential-ready GPS receivers.

The advanced digital signal processing techniques of the MBX-3 allow for reliable extraction of DGPS data from the beacon broadcasts, even in noisy environments.

Ease of Operation

The MBX-3 incorporates a large 2-line by 16-character display and 3-switch keypad. The intuitive menu system provides access to receiver status information and operating parameters.

You may configure the MBX-3 beacon receiver for either automatic or manual tune operation using the convenient menu system.

A new global beacon table within the receiver menu system allows selection of beacons by name.

Automatic Operation

In automatic mode, the two channels of the beacon receiver cooperatively construct and maintain a table of radiobeacons available in your area. The receiver's primary channel automatically locks to the station providing the highest quality signal. This ensures that the MBX-3 is always locked to the best beacon in the area.

Antennas

The MBX-3 receiver may use any of a variety of antennas offered by CSI. Options include an E-field Whip antenna, two varieties of H-field beacon Loop antennas, and a combination GPS/beacon antenna.

All CSI antennas incorporate band-pass filtering and integral preamplifiers. The MBX-3 receiver provides power to these active antennas.

H-field beacon Loop antennas do not require a counterpoise ground connection and are ideal for portable applications. They are also less susceptible than a conventional

whip antenna to predominate E-field noise, including precipitation static.

Hassle-Free Upgrading

The MBX-3 supports firmware upgrades as improvements to firmware or changes to the global beacon table are made. These upgrades are easily loaded into the receiver through the serial port using a PC computer.

Configuration Software

CSI offers custom Windows 95® software for beacon receiver configuration, monitoring receiver performance, and decoding RTCM data. A terminal interface and data logging capability are also included.

Warranty

CSI is committed to supporting its products and offers a one-year warranty on parts and labor.

Contact us to discover why the MBX-3 is the right choice for your application.



MBX-3 – 2 Channel Automatic Differential Beacon Receiver

Receiver Specifications

Channels:	2 independent channels
Frequency Range:	283.5 to 325.0 kHz
Channel Spacing:	500 Hz
MSK Bit Rates:	50, 100, and 200 bps
Cold Start Time:	< 1 minute
Warm Start Time:	< 2 seconds
Demodulation:	Minimum shift keying
Sensitivity:	2.5 µV/m for 10 dB SNR
Dynamic Range:	100 dB
Frequency Offset:	± 5 Hz
Adjacent Channel Rejection:	60 dB
Correction Output Protocol:	RTCM SC-104
Input/Status Protocol:	NMEA 0183

Communications

Interface Level:	RS-232C or RS-422
Baud Rates:	2400, 4800, 9600

Environmental Specifications

Operating Temperature:	-30°C to +70°C
Storage Temperature:	-40°C to +80°C
Humidity:	95% non-condensing
EMC:	EN 60945 EN 50081-1 EN 50082-1 FCC: Part 15, sub-part J, class A digital device

Power Specifications

Input Voltage:	9 - 40 VDC
Nominal Power:	2.5 W
Nominal Current:	210 mA
Antenna Voltage Output:	10 VDC (5 VDC optional)

Mechanical Specifications

Dimensions:	150 mm L x 125 mm W x 51 mm H (5.9" L x 4.9" W x 2.0" H)
Weight:	0.64 kg (1.4 lb)
Display:	2-line by 16-character LCD
Keypad:	3-key switch membrane
Power Connector:	2-pin circular locking
Data Connector:	DB9-S
Antenna Connector:	BNC-S
Optional GPS Output Port:	TNC-S

Operating Modes

MBX-3 Mode (Default):	RTCM SC-104 correction and NMEA status message output (Default Mode)
MBX-E Mode:	RTCM SC-104 correction and NMEA status message output and GPS NMEA message input for position and satellite status display.

NMEA 0183 I/O

- Receiver Automatic and Manual tune command
- Frequency and data rate query
- Receiver performance and operating status queries
- Automatic search almanac queries (proprietary)
- Baud rate selection command (proprietary)
- Receiver tune command
- Force cold start command (proprietary)
- Software upgrade command (proprietary)
- Configuration up-load command (proprietary)

Accessories

Antenna:	Various
Power Cables:	Various
Antenna Cables:	Various
Data Cables:	Various
CSI Beacon Command Center:	MS Windows 95® beacon control software

Pin-Out, RS-232C

DB9 Pin #	Description
2	TXD, RTCM SC-104 / status output
3	RXD -, configuration input
5	Signal return

Pin-Out, RS-422

DB9 Pin #	Description
1	TXD +, RTCM SC-104 / status output
2	TXD -, RTCM SC-104 / status output
4	RXD -, configuration input
5	Signal return
7	RXD +, configuration input

CSI Authorized Dealer



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