

The Next Wave in Navigation

IMO Compliant MX 521 D/GPS Smart Antenna

The MX 521 D/GPS Smart Antenna, featuring built-in RAIM and Space Based Augmentation Systems (SBAS), is compliant to the latest IMO standards.

- IMO MSC.112(73) Approved^{^^}
- RAIM (Receiver Autonomous Integrity Monitoring) enabled
- Designed for easy upgrade of existing MX 420 installations to latest IMO standards
- Connects directly to MX Marine Control and Display Unit (MX CDU)
- Better than 2 meter DGPS Position accuracy
- Better than 5 meter GPS Position accuracy
- Built-in DGPS sources include beacon and SBAS (WAAS, EGNOS, MTSAT)
- NMEA 0183 ver. 3.0 interface

^{^^} MX Marine CDU is required to comply as an IMO approved system



MX 521 is compatible with MX 420, MX 500, MX 510 and MX 520

DGPS Smart Antenna Receiver

The MX 521 delivers position accuracy better than 2 meters in DGPS mode when using RTCM correction data. It also provides better than 5 meters accuracy in standard GPS mode. It is backward compatible with existing MX 420 systems to make them compliant with the latest IMO requirements.

Beacon

Navigation authorities around the world have installed DGPS radiobeacon networks that broadcast free RTCM correction information. With the use of its' built-in beacon demodulator, the MX 521 uses these real-time corrections to deliver accurate, reliable positioning when in range of a beacon transmitter. Can be controlled by the operator to accept RTCM data from external sources using the MX Marine Control and Display Unit (MX CDU).

Augmentation

Space-Based Augmentation Systems (SBAS) like the European Geostationary Navigation Overlay System (EGNOS), the US Wide Area Augmentation Service (WAAS) and the Japanese

MTSAT Satellite-based Augmentation System (MSAS) are being developed throughout the world. The MX 521 can be controlled to use these systems to provide accurate positions in areas not covered by DGPS beacon stations.

RAIM

Receiver Autonomous Integrity Monitoring (RAIM) is a safety feature in the MX 521 which continuously verifies the integrity of the GPS system to ascertain its' accuracy and reliability. When position errors exceeds a pre-set limit, the MX CDU alerts the operator to take precautionary measures. RAIM is one of the latest requirements under IMO MSC 112(73) regulation. This RAIM feature can be accessed by the operator using the MX CDU.

Interface

The MX 521 features two independent NMEA compliant serial ports, which are identical to those of the MX 421B-10 DGPS Smart Antenna. The MX 521 interfaces directly to the MX CDU or to other NMEA 0183 compatible devices.

MX521 General Specifications

Receiver Type:	L1, C/A code, 1.575 GHz
Channels:	12-channel, parallel tracking (10-channel when tracking WAAS/EGNOS/MTSAT)
Position Update Rate:	1 Hz default, 5 Hz (optional)
Horizontal Accuracy:	<2 m 2D-RMS* (DGPS) <5m 2D-RMS* (GPS no S/A)
Cold Start:	60 s (Typical-no almanac)
Satellite Reacquisition:	< 10 s (Typical)

Beacon Sensor Specifications

MSK Bit Rates:	50, 100 and 200 bps
Channels:	2-channel, parallel tracking
Frequency Range:	283.5 to 325 kHz
Operating Modes:	Automatic and manual
Sensitivity:	2.5µV/m for 6 dB SNR @ 200 bps
Dynamic Range:	100 dB
Adjacent Channel Rejection:	61 dB @ $f \pm 400$ Hz

Communications

MX 521 Serial ports:	2 duplex NMEA 0183 Ports
Baud Rates:	4800 (default), 9600, 19200
Data I/O Protocol:	NMEA 0183 V3.0
NMEA sentences:	GGA, GSA, GST, GSV, RMC, VTG, GRS, ZDA, GBS ***
Correction I/O Protocol:	RTCM SC-104

Environmental

Operating Temperature:	-30°C to +70°C
Storage Temperature:	-40°C to +85°C
Splashproof:	"Exposed Category" IEC 60945 ed4

Electrical

Input Voltage:	10.5 to 32 VDC
Reverse Polarity Protection:	Yes
Power Consumption:	< 3 W
Current Consumption:	< 200 mA @ 12 VDC

Mechanical

Dimensions:	Height 10.2 cm (4") Diameter 18.4cm(7 1/8")
Weight:	0.5 kg (1.2 lbs.)
Power/Data Cable:	10-wire Shielded twisted pair (not included) available in 20, 40, 60 and 80 meter
Antenna Connector:	10 pin (male)
Mounting:	1 inch - 14 TPI Pole Mount

Certification

BSH and Wheelmark approval IMO MSC 112(73)
CE and FCC Compliant, CCS



* Depends on multipath environment, number of satellites in view, baseline length (for local services), and ionospheric activity

** Dependent upon ionospheric activity and multipath

*** MX Marine Proprietary RAIM message (\$PMVXG, GBS)

Distributed by



ap navigator

www.mx-marine.com

Leica
Geosystems

USA office ^ :
23868 Hawthorne Blvd., Suite #201, Torrance, CA
90505-5908, USA
Tel: +1 (310) 791-8213 Fax: +1 (310) 791-6108

Europe office:
Ocean Quay, Southampton SO14 5QY, U.K.
Tel: +44 2380 33 99 22
Fax: +44 2380 33 03 45