

Marine GPS

Introducing The World's First DGPS/AIS Navigation System!



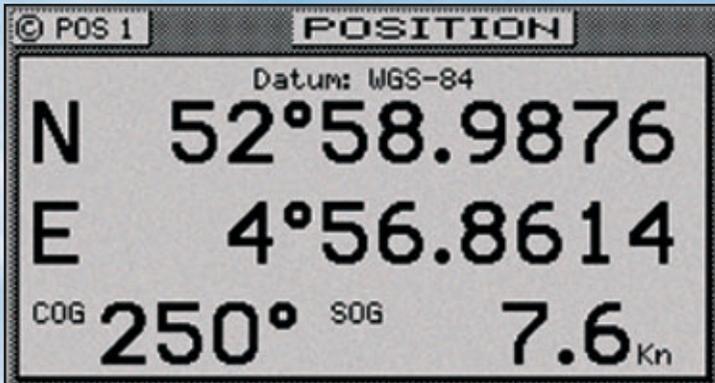
MX420 Navigation System:
The Most Advanced DGPS/AIS Navigation Solution.

Leica

MX420AIS... Pioneering The Future Standards Of Navigation



- All navigation and AIS information is contained on one screen.
- Highest accuracy navigation, with redundant system configurations creating a dual control system.
- Bright screen, easy to use displays.
- When the vessel has to be compliant, the MX420/8 is upgradable to AIS by just adding the MX423 transponder and new software.



MX420 Position Display



MX420 Steering Display

A Surprisingly Simple Solution To An Incredibly Complex Problem

As we move further into the Information Age we need to be aware of an increasing number of new, mandatory requirements that are coming into effect for most of the Commercial Shipping industry.

The new AIS (Automatic Identification System) standard, as well as new requirements for DGPS will lead the industry to new levels of safety and efficiency. Meeting these requirements may, however, prove quite expensive to many users and may still not produce the desired results. To address this problem in a cost effective manner, Leica has developed a complete solution to GPS, DGPS and AIS.

With only one combined Control and Display unit, you can now access all related information and still command full control of all GPS, DGPS and AIS functions. The system connects directly to the ship's navigation sensors as well as ECDIS, ARPA and your other shipboard information systems.

The introduction of the new MX420 Navigation System is, without a doubt, the most profound implementation of

GPS technology yet. Building on over 20 years of experience in GPS and DGPS, and now adding AIS as a key function, we have created the world's first integrated DGPS/AIS system.

Adding AIS to navigation for spontaneous 'ship to ship' or 'ship to shore' recognition will greatly enhance safety at sea and provide mariners with new levels of real-time information. Designed with the deep sea commercial mariner in mind, we have created multiple configurations to suit the size and complexity of any vessel.

Our MX420 Navigation System has the industry's brightest displays and, of course, has the legendary 'World's Most Accurate' Leica precision.

The Technology To Be Your Best

The MX420 Navigation System utilizes the latest achievements in GPS technology, developed in our partnership with IBM. The results are nothing short of astounding! Our "Autonomous GPS" accuracy is now typically 2.5 meters and our DGPS beacon accuracy is an astonishing 1 meter! The GPS and the DGPS beacon receivers now reside inside our new Smart Antenna (MX421 or MX421B).

"Course: 116°, Speed: 17.5 kn, ROT: Port 10"

"IMO: 314159236, M/S JULIETTA"

"Destinati"

The Smart Antenna

With our partner IBM, we are consistently breaking new ground in receiver design.

Combining our market-leading signal processing with IBM's SiGe chip-sets, we have created a winning technology with unique performance. The MX421 delivers better than

This unique arrangement ensures the best possible signal to noise performance of the system and also enables advanced signal processing and control.

In the full system configuration, the MX420 Control and Display Unit connects directly to the ship's gyro and speed log, as well as to ECDIS, ARPA, SatCom and the Pilot's laptop.

In addition, there are dedicated ports for the MX421 Smart GPS/DGPS Antenna and the AIS transponder, as well as an optional second MX420 system for full redundancy.

The MX420 system is extremely versatile and can be configured in a number of different ways to suit your requirements; from a single type-approved GPS navigator to a complete DGPS/AIS system.

Automatic Identification System-AIS



With the addition of the new AIS functions, we have created a fully realized, type-approved, DGPS/AIS system. The new transponder, developed by our partner SAAB TransponderTech, is a fully IMO-compliant STDMA unit remotely controlled by the MX420 Control and Display unit. All system set-ups and controls are configured on the MX420,

which also gathers the ship's sensor data and organizes the information for transmission via AIS. The ship's ECDIS, ARPA and Pilot's PC all have access to both the GPS and the AIS information via the high-speed serial ports on the MX420. Password protected menus allow you to safely and simply enter all Static and Voyage related AIS information. AIS Situation Displays give you immediate and continuous graphic and/or text information about AIS-equipped ships and shore stations as they come into radio range.



°/min"

"I am a High Speed Craft"

on: ESBJERG, ETA: 29 May, 2001 1145"

" I use

3 meters RMS accuracy in standard GPS mode! That's without support of any Differential GPS service – an ability that will become increasingly valuable when AIS

becomes mandatory. With the MX421 onboard, you will always know that the position information you broadcast is correct. The MX421B, the Beacon DGPS version of the

Smart Antenna, includes a dual channel beacon receiver as well as a unique H-field antenna solution that provides excellent sensitivity and noise rejection.

While the MX412B boasts an astonishing inherent accuracy of 1 meter RMS, it's main value lies in it's positive position quality assurance and the related safety features of the

You know the position, course, speed over ground, rate of turn, identity, and other information regardless of whether you're in open seas or coastal or inland waters.

The Benefits Behind The Power

- In merging the AIS control and display with the GPS/DGPS system, we have been able to create an extremely efficient solution without the usual requirement of additional space on the bridge.
- We have applied our familiar MMI philosophy to the AIS functions making it quick and easy for the operator to use the new MX420 system.
- The design fully integrates immediate requirements for GPS and Beacon receivers and future compliance will be a simple software upgrade as these standards change.
- The addition of 8 ports to the MX420 allows all navigation sensor information to be communicated to all other information subsystems onboard.
- Our latest GPS chip technology combined with a unique new Beacon Antenna solution guarantees consistent position accuracy and greatly improved jamming resistance.

Tailor-Made For Your Vessel

Using any of the MX420 systems, you can create your own navigation universe to precisely meet your needs, knowing that over time any additional functionality can be simply added. You can start with the MX420/2 GPS unit and upgrade to a fully redundant DGPS/AIS system in the future.

The various MX420 system configurations are achieved by combining either the two port MX420/2 or the eight port MX420/8 Control and Display Unit with the GPS (MX421) or DGPS (MX421B) Smart Antenna. There is also an entry level AIS Control and Display unit without GPS navigation functions (MX420/AIS Basic). The MX420/AIS Basic unit connects to the ship's existing GPS or DGPS navigator.

Dual System

Dual system configuration is possible on all versions but we recommend at least one of the two systems has 8 serial ports.

Upgrade to AIS

At any future time, the MX420/8 can be upgraded to MX420/8AIS by purchasing and installing new software upgrades.

Function	Two Serial Ports	Eight Serial Ports
GPS	Navigator MX420/2 Smart Antenna MX421	Navigator MX420/8 Smart Antenna MX421
DGPS	Navigator MX420/2 Smart Antenna MX421B	Navigator MX420/8 Smart Antenna MX421B
DGPS & AIS	N/A	Navigator MX420/AIS Smart Antenna MX421B
AIS Only	N/A	Navigator MX420/AIS Basic

Upgrade to DGPS

This is simply achieved by replacing the MX421 Smart Antenna with an MX421B Smart Antenna.

Legendary Heritage

The MX420 range of products share the same small footprint

as our MX400 series which is currently installed on thousands of ships worldwide. This makes the upgrade to the MX420 series a simple procedure.

If you want to see the future of navigation, right now, give us a call. We'll steer you right.

"Position: 52° 58.9876N, 4° 56.8614E"

GPS; Accuracy: High"

"I carry 156 people"

Marine Beacon Service. It is expected that SOLAS ships will be mandated to carry a type-approved Beacon DGPS system; the MX421 Antenna satisfies this need immediately.

Set a course to see one of these New Smart Antenna's right now.



Leica... The Professional's Choice For Centuries.

Marine GPS... World Wide Support.

On every continent and in nearly every country, we have agents and dealers who offer sales or service to Leica customers. No matter where you go, Leica is not far away.



Marine GPS, A New Force On The World's Oceans!

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