INVELCO, S.A.

INVESTIGACIONES ELECTRONICAS Y COMUNICACIONES

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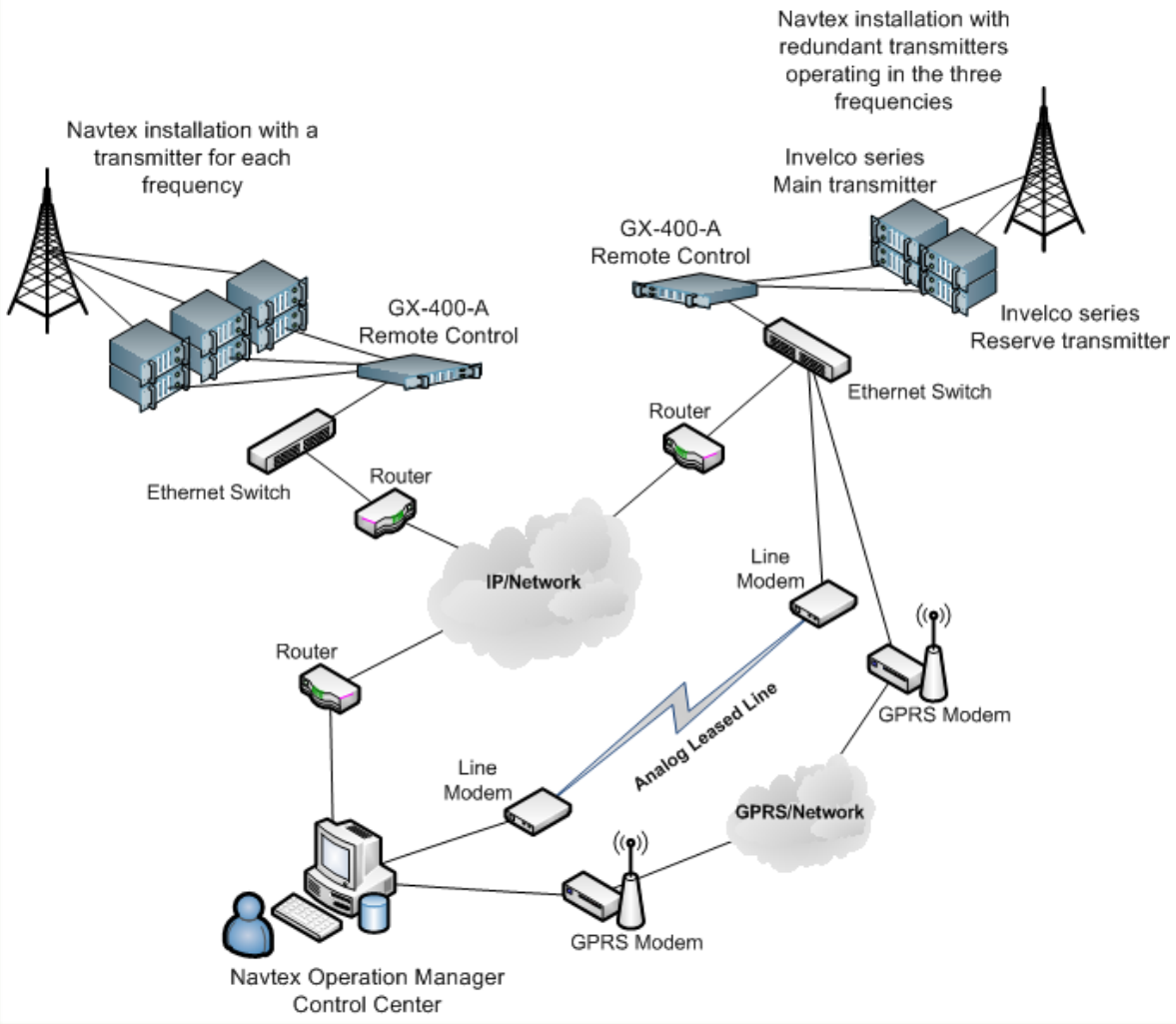
NAVTEX TRANSMISSION SYSTEM
NTS-2023



NAVTEX TRANSMISSION SYSTEM NTS-2023

DATA SHEET

INVELCO S.A. Navtex Transmission System has been developed according to the IMO and ITU standards, related with the Navtex service and following the technical characteristics defined in the ITU-R M.540-2, ITU-R M.625-3, ITU-R M.476-5 and the 2012 edition IMO Navtex Manual.

The Navtex Transmission System is based in a Server/Client architecture that allows the maximum reliability, flexibility and scalability by using independent units. It has an efficient intercommunication between the units for a limited consumption of broad band in order to guarantee the operation of the Navtex transmission system regardless the communication availability between the units and centres. The main unit of the systems are:

The four important characteristics that distinguish the Invelco system are:

- A single manager can operate up to 8 coastal stations, with the possibility of working in the 490KHz, 518KHz and 4209.5KHz with automatic control of all its parameters.
- The system has in each coastal station a transmissions' local controller (Navtex remote control) with all the information stored that comes previously from the Navtex operation manager in order to establish automatic and independent transmissions of the operation manager and its communication. This avoids the communication breakdown problems between the control centre and the coastal station.
- The system can be configured with independent transmitters for each of the operation frequencies or with a single INVELCO transmitters that allows operating in the three frequencies.
- Possibility of redundant communication between the operation manager and each coastal station. Up to 3 different IP channels of communication.

The main units of the system are:

- Navtex Operation Manager (PC Software in the Control Centre).
- Navtex Remote Control (GX-400-A Unit in the Navtex Transmission Centre).
- Navtex Transmitter (RF Transmission Unit in the Navtex Transmission Centre).

The Navtex Transmission System has the possibility of simultaneously manage the transmissions in 518 KHz, 490 KHz and 4209.5 KHz frequencies of one (1) to eight (8) Navtex Transmission stations. Each station is defined in the system individually with its own characteristics (station code, operation frequencies, schedules (time slots), transmitters, power levels, etc.)

SYSTEM FEATURES

- IP network infrastructure.
- Network support (Frame Relay, ADSL, DSL, RDSI, GPRS/UMTS, Analogical Dedicated Line, etc.)
- Allows up to 3 IP simultaneous communication channels for each Navtex Transmission Centre in automatic redundancy mode.
- Simultaneous management and configuration of 1 to 8 Navtex Transmission Centres from a single Navtex Operation Manager.
- 24/7/365 Operation.
- Transmissions in 518-490-4209.5 KHz (configurable) with a single INVELCO transmitter (model EM-700-X series or EM-525-X series) or by means of stand alone transmitters.
- Remote control and supervision with INVELCO transmitters.
- RF power independent configuration of the programmed transmissions (time slots) with INVELCO transmitters.
- Main/Reserve transmitter configuration.
- Automatic programmed transmissions in 518-490-4209.5 KHz (configurable).
- Immediate single transmissions of Navtex messages.
- Automatic transmissions (configurable) of Navtex messages type "Z" in the programmed transmissions that do not have Navtex messages to transmit.
- Real-time display of states and transmission progresses.
- Data base of all Navtex messages, events and alarms.
- Automatic back-up of the data base (configurable).
- Data base entry query.
- Navtex query and messages printing.
- Receipt and treatment of external Navtex messages by means of FTP Server in the same application.
- Local monitoring in the Transmission Centre by means of an auxiliary Navtex receiver (optional).

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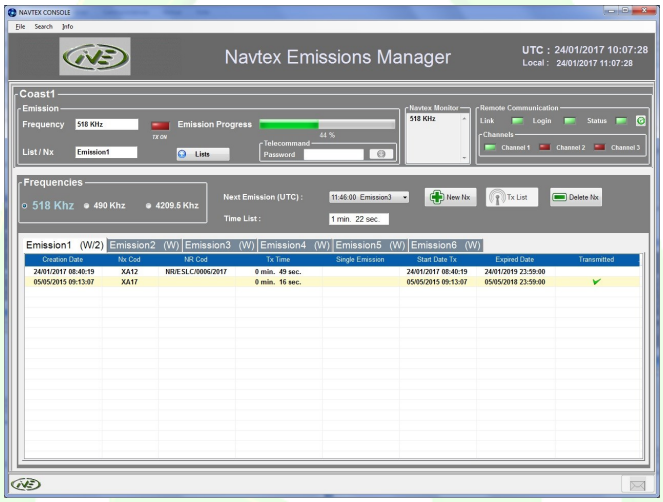
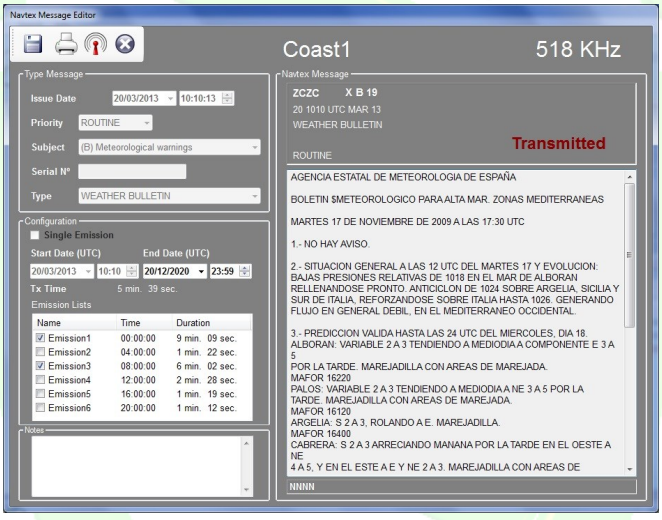
NAVTEX OPERATION MANAGER

Operation software of the Navtex System with a intuitive and easy to operate presentation, for the organization, follow-up and edition of Navtex messages of each one of the Navtex station configured in the System. All messages created, or received from external systems, transmitted, monitored; alarms and events occurred in the System are stored in the application data base.

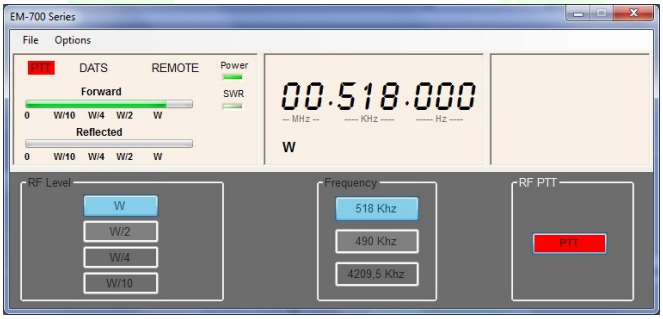
Navtex Operation Manager - Main Screen.



Navtex Operation Manager - Edition Screen.



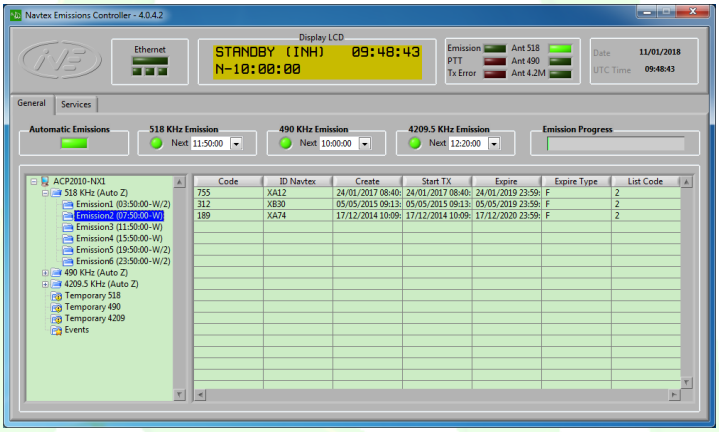
Navtex Operation Manager - INVELCO Navtex Transmitter Remote Control Screen



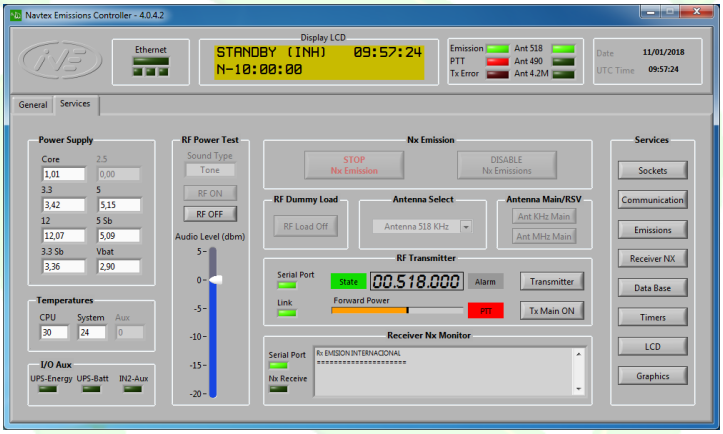
NAVTEX REMOTE CONTROL

The GX-400-A unit, located in the Transmission Centre, is in charge of automatically establish the Navtex transmissions in the scheduled times, with no need of the Navtex Operation Manager to intervene or communicate. When this unit is associated with an INVELCO transmitter (model EM-700-X series or EM-525-X series), such unit controls the transmitter to accomplish the Navtex transmissions in any of the 518 KHz, 490 KHz and 4209.5 KHz frequencies. It can manage a Main/Reserve transmitter configuration. Management of auxiliary units of switch and distribution. Navtex transmission monitoring. Transmitter's supervision and remote control. Transmission tests, etc.

Navtex Remote Control - Main Screen.



Navtex Remote Control - Service Screen.



Navtex Remote Control - INVELCO Transmitter Control Screen.