

# Project Profile

## *USNS Spica* Sets Sail with *Infinity* On Board



*Infinity sets sail  
on USNS Spica*



The true versatility of the *Infinity* system was recently exemplified when the United States Navy selected the Andover system to perform refrigeration monitoring and compressor control aboard a naval vessel. *Infinity* sets sail on the *USNS Spica*!

Home-based in Oakland, California, the 524' (160m) long *USNS Spica* is part of the Military Sealift Command's Naval Fleet Auxiliary Force. Called "combat stores ships", they are, in actuality, "floating supermarkets". They deliver refrigerated stores, dry provisions, technical spares, general foodstuffs, fleet freight, fuel, and mail to Navy combatant ships at sea. Underway replenishment, as this is termed, allows large naval ships to remain at sea for extended periods of time and to be less dependent on shore installations. During underway replenishment, both vessels sail at top speed side-by-side as the combat stores ship uses tensioned high wire cargo rigs and UH-46 Sea Knight helicopters to transfer the supplies across the water to the Navy combatant ship.

The *Spica* stores its large quantities of perishable cargo in thirteen 50' x 50' (15m x 15m) storage refrigerators. To prevent against possible spoilage in the tropical Far East climate where the *Spica* is stationed, temperatures must be strictly maintained. Some boxes must be kept as low as -5° F. (-20° C.), so reliable refrigeration monitoring system is *imperative*. The original automation system installed in the ship required the ship's crew to walk around and read the temperature and pressure gauges outside each refrigerator hourly. In addition, the ship's crew, the majority of which are civilians, turns over every six months, and are not fully experienced with the ship's monitoring system and software. Because the system had no remote access capabilities, trained service personnel had to helicopter out to the ship, no matter how far, to troubleshoot equipment and system problems.

The harsh marine conditions under which the *Spica* sails required some unique hardware and cabling enhancements during *Infinity's* installation by Andover Representative, *CommAir*, of Oakland, California. According to Ron Constantino, *CommAir's* Vice President and Energy Department Manager, an *Infinity* CMX 240 network controller with modem and a DCX 250 touch screen display mounted in a protective custom aluminum housing were installed in

the control room four decks below. The seventeen LCX 800 Local Control Units installed in the compressor room were mounted on rubber pads to absorb the jarring motion of the waves and coated with silicone for extra protection from high moisture conditions. The *Infinity* LCX 800 controller was specifically selected for this project for its high temperature range (up to 140° F. (60° C.), necessary to operate properly in the 100% humidity and 110° F. (43° C.) heat. Government building codes prohibited the use of conduit to enclose the system wiring, so special mil-spec 3-inch (76mm) thick cable was used instead to protect against damage from the heavy equipment traffic; i.e., forklifts, etc., on board the ship.

When a refrigerator goes into alarm on the *Spica*, a light flashes on the operator's terminal, a siren sounds, and the *Infinity* DCX 250 displays temperature and pressure values for the refrigerator in alarm. The alarm information is also sent to the ship's printer. The ship's crew can also view temperature and pressure values for any refrigerator at any time using the DCX 250 touch screen. In addition to alarm notification, *Infinity* sends a log of alarm events to the ship's printer each day.

When necessary, the ship notifies *CommAir's* office in Oakland, which dials up the ship via the CMX 240 modem, brings it on-line, determines the problem, and works with the ship's crew to correct it.

"We've been 'on-line' with the *Spica* for several months now and the *Infinity* system is running smoothly," states Ron Constantino. "Temperature and pressure gauge readings that once took the crew hours to walk around the ship and manually record are now just a touch away."



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**PROJECT AT A GLANCE:**

**Project Type:**

Refrigeration Monitoring

**Project Name:**

*USNS Spica* Combat Stores Ship

**Home Port:**

Oakland, California

**Market Segment:**

Military

**Length:**

524 feet (160 meters)

**Beam:**

72 feet (22 meters)

**Infinity Equipment Installed:**

1 - CMX 240 with modem  
17 - LCX 800s  
1 - DCX 250

**Applications:**

Refrigeration monitoring  
(temperature and pressure)  
Compressor control  
Remote Dial-up

**Total System Points:**

80

**Andover Controls Representative:**

CommAir Energy