	AMS-500 Series **Monitoring Server** **Technical Data**	Document Nr.: A3.5.040/E 1 Replaces doc.: A3.5.040/E - Date: 10.07.2003

The ALCO Controls AMS-500 Series Monitoring Server makes a commercial refrigeration system utilising ALCO Electronic Controllers accessible from the outside world via Industry Standard TCP/IP communications protocol. Alarms generated by ALCO Electronic Controllers on the LON network are collected, documented and if needed sent to remote locations via different services. Within the refrigeration system, the AMS-500 Series Monitoring Server is the central data collection and data storage device. As part of the ALCO philosophy of Plug & Play in commercial refrigeration, the AMS-500 Series are fully pre-configured with all Hardware and Software installed and fully tested. A full overview of the complete system offering is given in the Electronics System Overview Data Sheet.

AMS-500 Series
Monitoring Server

Features

- Fully pre-configured and tested; all Hardware and Software installed
- Customisation made easy with familiar Windows® pick, copy & paste commands
- Web Server functionality for remote access from any PC with Microsoft Internet Explorer® browser; no special software needed
- Access via Internet, Intranet or dedicated dial-up connection
- Storage of temperature, pressure and other operational data
- Visualisation of the entire refrigeration system including the status of all networked controllers, all current operational and stored data
- Export of data in XML format for further analysis
- Collection, handling, indication and routing of alarm states
- 3 LED system status indicators; 1 programmable SPDT relay alarm contact
- System watchdog with processor temperature & cooling fan monitor including system auto reboot feature
- Open and interoperable LON communications interface and protocol
- Echelon® LNS Server license included
- Monitor, keyboard, mouse and Ethernet connections for local configuration and visualisation
- Rugged housing for wall mounting with key-lock for protection of cabling access
- CE approved

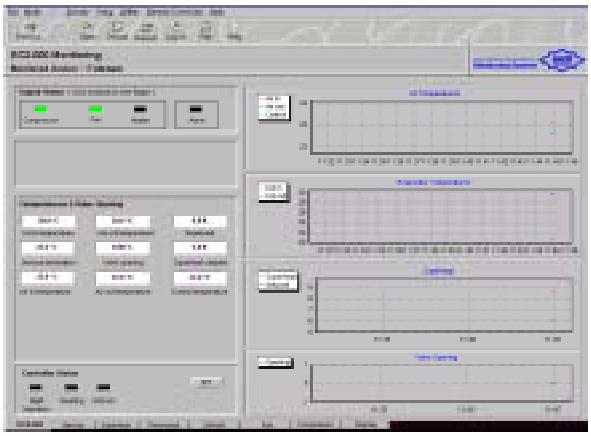
Options

- ISDN or analog modem
- FTT10 or RS-485 LON interface
- Third party communications protocols upon request

Introduction

Though the benefits of networked refrigeration systems are obvious to all users, many have avoided them for reasons of cost and complexity in installation. ALCO Controls have addressed these concerns with the introduction of the AMS-500 Monitoring Server and the EC2 and EC3 series Electronic Controllers for commercial refrigeration systems. All of the above are pre-configured for Plug & Play operation requiring a minimum of time and effort in system installation and commissioning. The AMS-500 Monitoring Servers are shipped with all Hardware and Software installed, pre-configured and tested. The default settings are optimised for the most common applications. Besides wiring of the communications network and the power line, human interaction during setup is limited to entering the specific floor plan of the refrigeration system, inserting the local controller objects, setting up the alarm handling procedures and entering the data for the remote connection. All configuration tasks are executed in the familiar Microsoft Windows® environment using common Windows® command sequences. Architectural floor plans of the refrigeration system can be entered in Bitmap format or, if not available as a bitmap, be scanned from paper drawings or generated by using any PC graphics program.

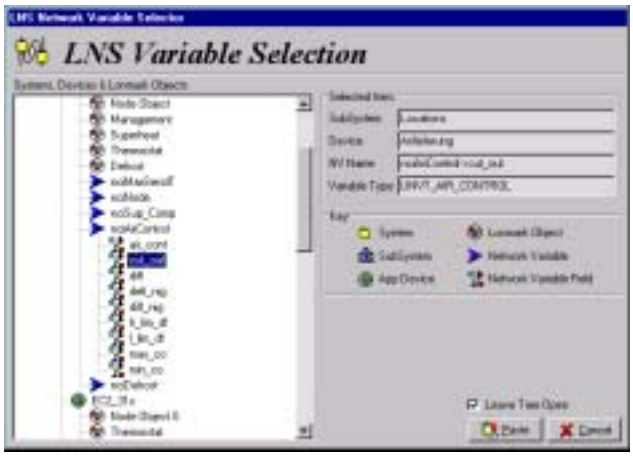
A device library contains all available ALCO Controls Electronic Controller objects. They are loaded from the library and entered into the floor plan and customised if necessary. Pick, copy and paste sequences allow efficient duplication of customized controller settings without re-entering any data. All configuration tasks may be done locally by connecting keyboard, mouse and display to the AMS-500 or be conducted remotely through any of the available connectivity options.



Virtually unlimited storage capability of all configuration and operational data including alarms is available on the built-in Hard Drive. The refrigeration plant layout and all data may be visualised locally with an optional monitor and/or remotely. Operational data can be exported using the common XML data format. A pre-installed application permits daily transmission of operational data via e-mail with an attached XML file.

Alarm handling and alarm sequences are fully programmable and can easily be configured to meet specific customer request. Alarms may be transmitted via e-mail, FAX and/or SMS to remote locations like a call center or refrigeration maintenance personnel. Multiple alarm handling sequences are available to match customers' different needs depending on the time of day and weekdays, weekends or holidays. Three built-in LED indicators signal the state of the refrigeration system to local staff. A green LED signals the AMS-500 is fully operational and the refrigeration system is operating normally without any active alarms. An amber LED signals an alarm has occurred and the alarm handling procedure has been executed successfully. An additional red LED signals the failure to transmit the alarm to the pre-determined recipient(s) and is intended to initiate corrective actions by local personnel. A built-in programmable SPDT relay contact allows a connection to local alarming devices to start visual or acoustical alarm signals.

Integral Web Server functionality and the use of TCP/IP as the standard communications protocol to the outside world enable connectivity without limits. Depending on customers' preferences the AMS-500 Monitoring Server may function as a Web Server on the Internet or Intranet via a permanent connection or as a data collection and alarm handling device using a dialup connection via ISDN or analog phone line. Connectivity to Wide & Local Area Networks (WAN, LAN) or individual local computers is feasible through the built-in Ethernet port. Note: An Internet Service



Provider (ISP) is required for Internet connectivity.

ALCO Controls have chosen LON as their standard network architecture and protocol within the refrigeration system. Therefore the AMS-500 Monitoring Server as well as all ALCO Electronic Controller Series EC2 and EC3 feature as standard the LON connectivity. They are fully interoperable and compliant with the LON communication standards. Though the AMS-500 was primarily designed to monitor and supervise refrigeration systems utilising ALCO Electronic Controllers, third party devices may be connected. Any third party LON compliant device may be integrated into the network. The AMS-500 Monitoring Server operates via the Echelon® LNS Server and requires an installed system database. The LNS database can be created using the optional ANL-220 Network Manager tool which then gives direct access to the LON Standard Network Variable Types and Users defined Network Variable Types (SNVTs and UNVTs).

LON or Ethernet Connectivity allow connections to and interactions with building management, energy management, security and/or other systems.

Network connectivity beyond LON is available. Third party refrigeration protocol drivers are available and allow monitoring and control of refrigeration systems, which utilise proprietary communications protocols.

The AMS-500 rugged sheet metal housing is designed for easy wall mounting. All connections are shielded from unauthorised access by a door with built-in key lock.

Selection Chart

Model	Description	Modem	LON interface	PCN
AMS-500	Monitoring Server	ISDN	RS485	804 406
AMS-501	Monitoring Server	ISDN	FTT-10	804 401
AMS-510	Monitoring Server	Analog	RS485	804 407
AMS-511	Monitoring Server	Analog	FTT-10	804 402

Units include IEC 83/C4 & CEE7/VII style power cable suitable for Belgium, Czech Rep., Finland, France Germany, Greece, Hungary, Netherlands, Norway, Poland, Portugal, Spain, Sweden, Turkey etc.

Utilities

ANL-220	Network Manager Tool with Dongle	ECC-021	804 371
ANL-220	Network Manager, Demo Version	ECC-024	804 378

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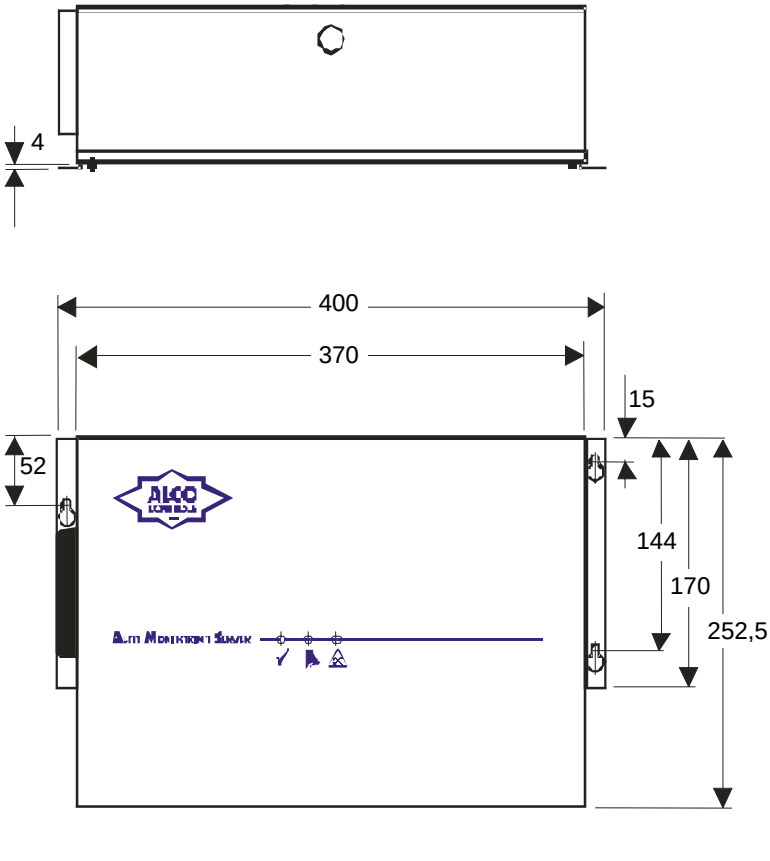
Technical Data

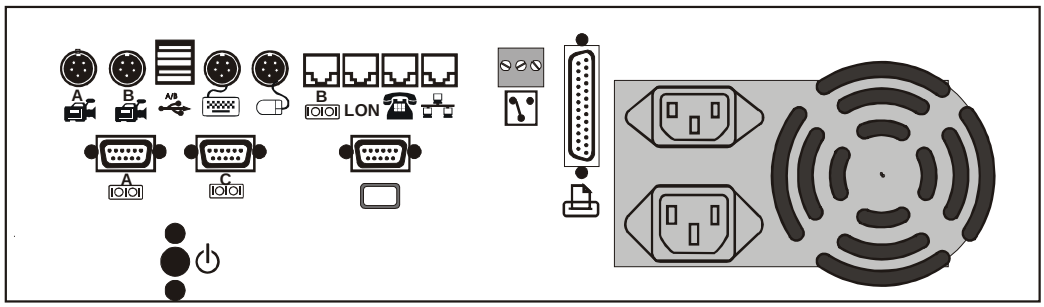
Processor	Min. Intel® Pentium® MMX 233MHz
Memory	Min. 128 MB
Hard Drive	Min. 10GB
I/O Ports	10/100 Ethernet (RJ45) 2 USB ports (for future use) 3 Serial ports (2 x 9-pin D-connector, 1 x RJ45 suitable for RS485) 1 Parallel port with ECP (25-pin D-connector) 1 PS/2-style keyboard: 6-pin 1 PS/2-compatible mouse: 6-pin 1 S-VGA display
Modem connection	1 ISDN or Analog 56KB
LON	1 FTT-10 or RS485
Protection class	IP20

Supply Voltage	90 ... 132 Vac; 180 ... 264 Vac; 50/60Hz
Operating Temperature	0 ... +45°C
Storage Temperature	0 .... +60°C
Status indicators	3 LEDs front mounted Run, Active alarm & Service alarm 1 programmable SPDT relay contact 250Vac, 8A
Operating System	MS Windows NT 4.0 SP6, English Built-in watchdog functions with auto reboot
Dimensions	400mm*252mm*110mm
Weight	6,15 KG
Mounting	Wall mounting, 3x fixtures
Inlet Air filter	Removable & washable

Physical dimensions, drawings



Connectors on the bottom side of the housing
can be key locked against unauthorized access.



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