



## »»» NORIMOS 3500 – Cost-effective, Computer-based Alarm, Monitoring and Control System

### The system concept

The N3500 is our solution for a cost-effective alarm, monitoring and control system of the well-known NORIMOS family. It is used to monitor and control ship technology, such as engines, generators, pumps, valves, ventilators or other auxiliary system. The N3500 as a centralised system is based on two central PC master stations that are acquiring and monitoring the measurement data from the connected I/O modules. It can be easily extended to customer requirements. With up to 9,000 I/Os and features like trend tables and automatic and daily storage of the alarm history on hard disk, the system leaves sufficient space for different applications and thus, it is ideally suitable for both small data acquisition systems and complex alarm, monitoring and control systems. The optional alarm extension indicates the system status at any place on board the ship. Therefore, different display versions for accommodation and bridge are available.

### Secure redundant system communication

The redundant communication via CANbus and Ethernet ensures maximum system availability. All system components are designed redundantly and even in case of failure of single components, the system can still be operated.

### Your benefits at a glance

- Central and modular system, easily expandable for your application
- Cost-effective due to components with standardised functionality
- Redundant system communication
- Made for reliable operation under extreme conditions
- Powerful alarm extension system: High-resolution displays for demanding graphical indication for bridge and accommodation
- Customisable mimics
- Worldwide service
- Class approval: BV, ABS, DNV-GL, CCS (others on request)

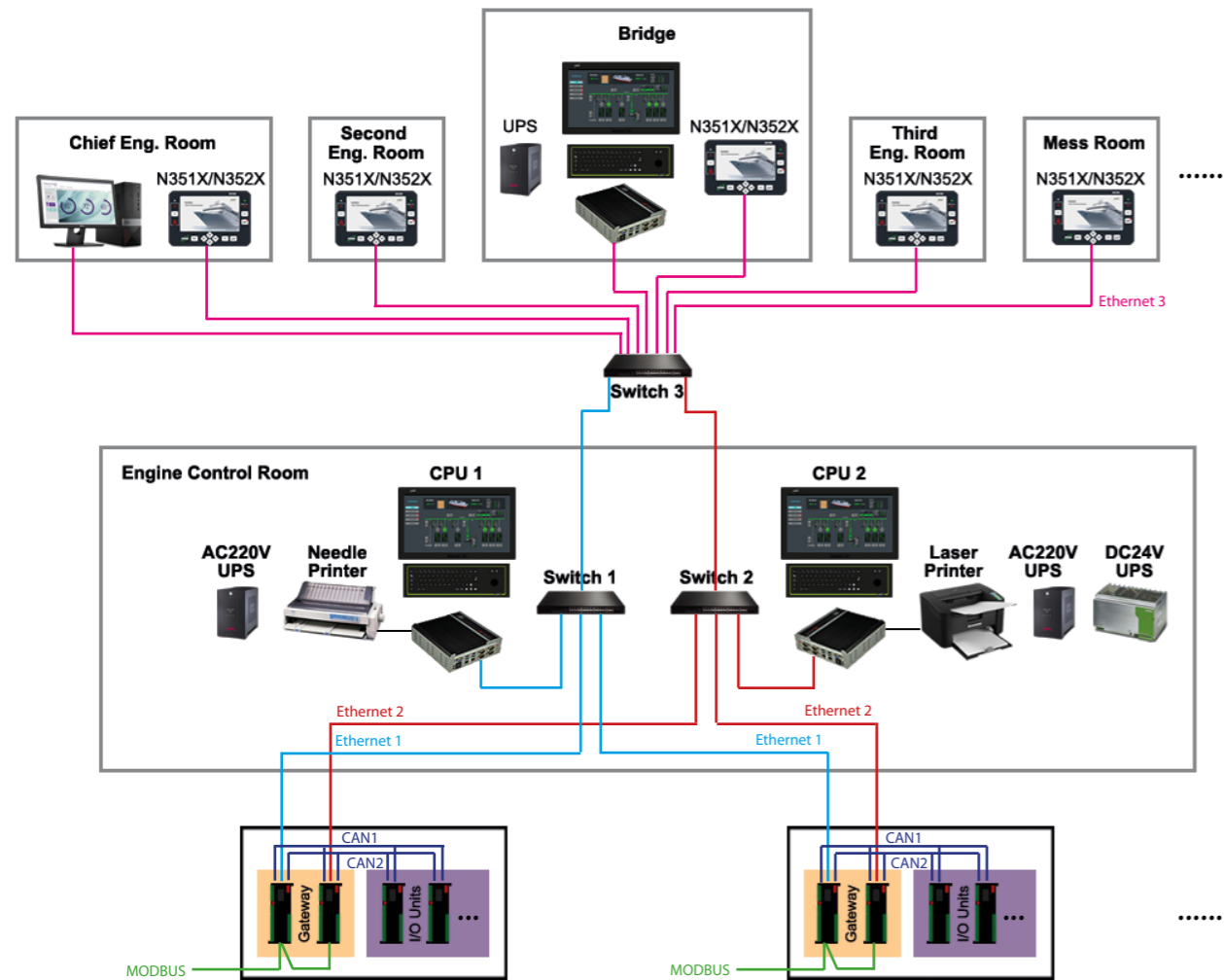


DNV-GL



Alarm and Display Unit N3520 and Extension Alarm Panel N3510

## N3500 system overview



### System structure with two central processing units

The system is based on two PC master stations (robust industrial computers), that are operating in hot standby mode as the redundant core of the system. They acquire and monitor the measurement data of the connected signal acquisition units (SAUs), control auxiliary systems and offer both graphical mimic with gauges and bar graphs and numerical mimic with alarm list, alarm history, measuring parameter list, etc.



Fire alarm panel

### System communication

The communication between the PC master stations and the redundant gateways is realised via Ethernet with two redundant switches. This guarantees maximum safety and system availability. The I/O units are connected via a redundant CANbus network to the gateways. Thus, it is easy to extend the system to customer requirements.



I/O unit

### System extension

The system can be easily extended via Ethernet. Therefore additional PCs and displays, e.g. for offices or cargo rooms and also printers for alarm printing can be connected. The system also offers an alarm extension panel for accommodation and an alarm display for the engine control room and the bridge, both equipped with CAN, Ethernet and RS-485 interface. Of course, the alarm extension can be adapted to the respective class rules which fulfil the requirement for unmanned machinery space (UMS).

### I/O units for signal processing

Each I/O unit is equipped with microcomputer, two CAN communication interfaces and a signal acquisition interface. The signal processing involves binary channels, 4...20 mA, 0...20 mA, 0...5 V, 0...10 V, PT100/Pt1000, thermocouples and speed sensors.

## NORIMOS 3500 system features

### Suitable for Your Application

- Measurement data acquisition and data recording
- Engine alarm and monitoring
- Engine start / stop
- Control and monitoring of bilge and ballast system
- Control of other auxiliary systems (pumps, valves, ventilators, etc.)

### Visualisation

- Modern and uniform look & feel
- Easy-to-customise graphical colour mimic display
- Intuitive, clear and easy to understand GUI
- Measuring parameter list, alarm list, alarm history and trend tables
- Graphical indication with gauges and bar graphics



### Alarm Extension and Duty Assignment

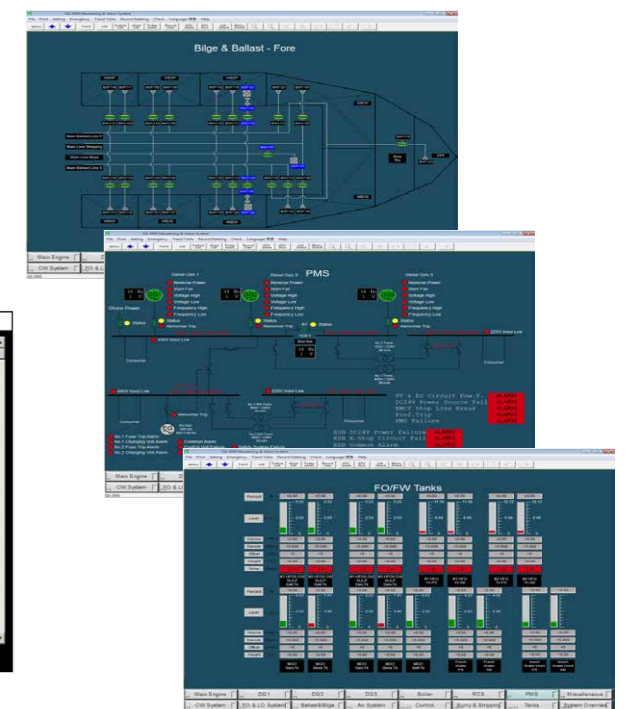
- 7" high-resolution display and 5.7" alarm extension display for accommodation, bridge and engine control room
- Duty assignment and duty takeover for unmanned machinery space
- Engineer call function

### Other System Features

- Measuring parameters list defined by customer
- Printing of current alarm list, alarm history and alarms of history storing information
- Automatic and daily storage of alarm history on hard disk
- Automatic or manual interlock of alarm function
- Different user access levels for standard users and administration

### Extensive Project Support

- Complete project support: installation, commissioning and service
- Over 90 years of experience with marine systems
- Long-term availability of spare parts
- Worldwide service



## NORINET for secure data transfer and remote access

System maintenance is essential in order to minimise service and repair costs and to keep all systems on board running. We have the right solution that avoids idle time in ports and enables us to react flexibly and fast. The optional remote access and the long time storage of engine and monitoring system data are further essential factors concerning analysis and predictive maintenance. In times of skyDSL/GSM/GPRS the remote access is a useful feature to stay in touch with your vessel.

NORIS offers the appropriate infrastructure for all its systems. The data is stored on board into a ring buffer of an offshore data unit and is cyclically transferred via secure connection and HTTPS to the NORINET.

## Your benefits at a glance

- Optional remote access available (depending on software/hardware)
- Flexibility for the ship owner and his crew
- Enables system secure remote access
- Realtime access to monitoring system
- Optimises maintenance processes, and thus, ensures failsafe operation
- Easy system updates
- Enables data transfer for analysing purposes

### NORINET Features

- Web access via secure connection and HTTPS
- Data access on historical logs
- Real-time access for limited tags (~ 50)
- Trend analyses
- Geo indication
- Alarm/Error message overview
- Reports generator (logs, trends, alarm lists)
- Multi user access to a webpage
- Dashboard for general information

### Offshore Data Unit Features

- Data acquisition
- Data pre-analysing
- Data storage into ring buffer
- Cyclic data logging to portal

