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We realise automation engineering applications with our flexible and open automation platform. The system is based on recognised industrial standards with perfectly matched hardware and software components. It is suitable for simple as well as complex applications:

- Alarm, monitoring and control systems (AMCS)
- Alarm extension system/duty alarm system
- Propulsion control systems for ship propulsion
- Emergency order telegraph systems

**System concept**

The platform is a flexible master-slave system featuring a central control unit that is the heart of each and every application. Further I/O components with functionalities that cover a wide spectrum of applications are used to meet specific application requirements. Each automation system consists of one or several independent subsystems that are linked by a redundant bus. This configuration ensures maximum operational reliability. Thanks to the compact and robust design of the modules, the system is particularly suitable for use in the harshest of environments, e.g. directly next to engines and machinery.
Integrated web server for straightforward and convenient configuration

The configuration of the AEGIR-Marine PRIME Control system and automation platform is based on the powerful CODESYS software suite which was specifically developed for complex applications in industrial automation engineering and provides the user with integrated solutions ranging from engineering through visualisation to safety control and field bus technology. Straightforward configuration and parametrisation via a standard Internet browser (e.g. Internet Explorer).

Interfaces for system integration

Interfaces such as RS232/-422/-485 with MODBUS RTU or other user-defined protocols or redundant Ethernet for field bus connection ensure complete system flexibility. This layout effectively enables integration of and in third-party systems, in the ship’s network as well as reliable access via Internet to the system (e.g. for maintenance purposes, system optimisation or to retrieve stored data).

THE SYSTEM COMPONENTS

Central control unit

Master module with high performance 32-bit processor, 4 digital inputs, 4 relay outputs, redundant Ethernet/CANbus interface, data logger via SD (HC) card and integrated web interface.

I/O module for 24 digital channels

I/O module for processing up to 24 digital channels, software-configurable as input or output.

Universal I/O module

for up to 8 analogue channels I/O module configurable with up to 2 signal boards:

- AI board: 4 configurable analogue inputs, 1 digital input, 1 relay output
- AO board: 4 configurable analogue outputs, 1 digital input, 1 relay output
- Pt100 board: up to 8 Pt100 channels

SYNOPSIS

- Fast, multitasking 32-bit processor for processing highly complex controls
- Open communication and programming standards (PLC conforming to IEC 61131 with CODESYS) ensure a high degree of flexibility and compatibility
- Integrated web server with CODESYS Web Visualisation for fast and easy configuration
- Redundant bus systems (CANbus, Ethernet) ensure complete operational reliability
- Many application-specific modular expansions for exceptional flexibility
- Conforms to global shipbuilding standards
I/O module for 16 universal analogue inputs
I/O module for processing up to 16 universal analogue inputs in 2 or 3-wire configuration.

I/O module for 16 digital inputs
2 relay outputs, 4 analogue inputs, 4 analogue outputs.

I/O module for 32 digital inputs
I/O module for up to 32 digital inputs with integrated open-circuit monitoring in 2-wire configuration or in part 3-wire configuration (of which up to 8 inputs with frequency measurement/counter function)

I/O module for 16 digital inputs and 8 relay outputs
I/O module with 16 digital inputs in 2 or, in part 3-wire configuration (of which 4 inputs with frequency measurement function), 8 relay outputs as changeover contacts, high-current, replaceable.

Central operator control module
Operator control module (HMI) with redundant interface with central control units, equipped with 12 software-configurable buttons, 4 analogue outputs, 4 digital inputs, 4 relay outputs, 2 dimmer channels.

Expansion module for operator control
This operator control module (HMI) can be connected as an expansion to the central control unit or to the central operator control module and is available in several different versions.
**AEGIR-MARINE PRIME AMCS 1000 - cost-effective, computer-based alarm, monitoring and control system**

**System concept AEGIR-Marine PRIME AMCS 1000**
The AMCS 1000 is our solution for a cost-effective alarm, monitoring and control system. It is used to monitor and control ship technology, such as engines, generators, pumps, valves, ventilators or other auxiliary systems. The AMCS 1000 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.

**SYNOPSIS**

- 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 approvals: ABS, BV, DNV-GL, LR
AEGIR-MARINE PRIME AMCS 2000 - high performance, PLC-based alarm, monitoring and control system

System concept AEGIR-Marine PRIME AMCS 2000
The amcs 2000 is our alarm, monitoring and control system for high demands in operating comfort, usability, flexibility and system availability. It is used to monitor and control ship technology, such as engines, generators, pumps, valves, ventilators or other auxiliary systems. The AMCS 2000 is a PLC-based AMCS with decentrally placed subsystems. Each subsystem is operating independently with a high performance I/O CPU master and slave units and is connected to the other subsystems. The system can be easily adapted to customer requirements. With features like data logging, trend monitoring, alarm and event history and user right management, the system is ideally suitable for simple as well as sophisticated applications. Furthermore, the system can be easily extended with remote access for automatic and secure data transfer and storage to onshore data services for analysing purposes. 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.

Visualisation for maximum flexibility
The visualisation software makes system information available on the screen in an application-oriented and comfortable way on data viewing stations (PCs), on displays in the engine control room, office, on the bridge or any other location on the vessel.

SYNOPSIS
- Decentral and modular PLC-based system for maximum flexibility and failsafe operation
- Robust, reliable and approved components
- Easily expandable for your application
- Easy-to-customise thanks to modular design
- Customer-specific mimics
- Integrated web server for remote access and secure data transfer
- Powerful alarm extension system
- Worldwide service
- Class approvals: ABS, BV, DNV-GL, LR
AEGIR-MARINE PRIME PROPULSION SYSTEM

System concept PRIME Propulsion System
The PRIME Propulsion System is a modular and flexible propulsion control system and our solution for fixed propeller, variable-pitch propeller, Azimuth and diesel-electric propulsion systems and various belt drive systems. The system is based on the central control unit and I/O components of the PRIME automation platform. Several versions of the control desk are available for remote propulsion control on the bridge, aft bridge and wing control stands. Each control desk can be expanded with various operator control panels and can be easily adapted to any customer-specific application or requirement. All system components are interconnected by state-of-the-art field bus technology. The redundant bus concept of the control desk ensures maximum operational reliability.

Interfaces with external systems
The propulsion control system can be connected via a bus link to the Integrated Bridge System (IBS). An interface with the Voyage Data Recorder (VDR) is also integrated in the system.

Commissioning and service
Straightforward system configuration takes place on a touch screen display with a menu-supported user interface with the central control unit. The intuitive and standardised operating procedures allow customers to perform the commissioning procedure for the propulsion control system themselves.

SYNOPSIS
- For all types of thruster systems
- Can be adapted to any propulsion application
- Integrated protection to prevent engine overloading
- Defined control programs for various operating modes
- Integrated NFU control
- Interfaces with external systems (e.g. VDR, IBS, etc.)
- Integrated touch panel display for user-friendly configuration and monitoring
- Easy installation
- Maximum availability backed by worldwide service
- Optionally available with additional functions: Load distribution, electronic synchronisation, start-stop logic, connection to dynamic positioning and joystick systems, etc.

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CONTROL LEVER SYSTEMS FOR SHIP PROPULSION

System concept PRIME control lever system
The PRIME control lever system was developed for shipboard propulsion systems and is our solution for propulsion control applications. It is the ideal addition to the propulsion control system. The control lever is available as a single or double control lever with a simple design (with potentiometric or analogue standard signal outputs) or as a fully electronic version with integrated data interface and can be configured customer-specific for any application.

Communication with other automation systems
The fully electronic version of the control lever can be connected to any automation system via a redundant CANbus or via the integrated RS-485 interface with MODBUS-RTU.

SYNOPSIS
- Available as a single or double control lever
- Version also available for azimuthing and transverse thrusters
- Different scales available for each control lever
- Position indicator for each control lever
- Optionally with electrical shaft function and force feedback for each lever
- Configurable for different applications
- Factory preconfigured for easy installation and commissioning by customer
- Suitable for indoor and outdoor applications
- Interfaces: 2x CANbus or 1x CANbus + 1x RS232/485
System concept

The AEGIR-Marine PRIME EOT is an emergency communication system used to transfer vital commands between the wheelhouse and engine room fast and reliably. Up to 12 emergency engine order telegraphs can be integrated in a master-slave Configuration. Different versions are available for the bridge (ahead/astern) and engine room or engine control room. Each emergency order telegraph is equipped with 11 order buttons. When an order button is pressed on a master unit on the bridge, the order is signalled visually by the corresponding button flashing and acoustically by an integrated buzzer on the slave devices in the machine room or machine control room. The order must then be confirmed by pressing the flashing order button on the slave unit.

SYNOPSIS

- Robust devices for use in harsh environments
- Different versions for different applications
- Up to 12 emergency order telegraphs in one system
- Visual and audible alarm triggering
- Operating status indicator on each unit
- Dimmable lighting for bridge units
- 6 floating relay outputs per unit, e.g. for Wrong Way Alarm or for connecting external buzzers
- Connection to the Voyage Data Recorder (VDR)
**Speed sensors**
Our speed sensors are used in speed measuring systems for engines, gearboxes, generators as well as in other machinery.
- Non-contact or mechanically driven sensors (pick-ups, tachogenerators)
- Various designs and different connections
- A range of measuring principles: Difference-hall, inductive-magnetic or eddy current for scanning ferromagnetic or aluminium gearwheels
- Different enclosure materials (e.g. brass, stainless steel or aluminium)

**Temperature sensors**
Our temperature sensors are used to measure exhaust gas, oil, coolant and bearing temperatures.
- Different designs, different immersion depths, different measuring elements: Pt100/Pt1000, NTC thermistors, thermocouples
- Different enclosure materials: brass, stainless steel, CuNiFe
- Enclosure protection class up to IP68

**Pressure transducers**
You will find our pressure transducers on engines and gearboxes for measuring the lubricating oil pressure, on hydraulic and pneumatic pumps, on filters, compressors and pressure tanks as well as on tank installations for measuring fluid levels.
- Registering pressure of liquid and gaseous media
- Absolute and relative pressure measurement
- Standard signals 4...20 mA, 0...10 V
- Different connections

**Rotary position sensors**
- For precisely registering angular positions
- Mounted directly on the drive shaft
- Maintenance-free
Our indicator instruments feature stepper motor technology or are equipped with a moving-coil element. They are primarily used wherever great demands are placed on durability and reliability. The high electromagnetic compatibility as well as the immunity to shock and vibration as stipulated by the ship classification bodies enable continuous use under increased mechanical stress conditions.

**Combi-sensors**
Up to 3 sensors in one enclosure for combined measurement of speed, temperature and acceleration (vibration)

**Signal processing devices**
Our signal processing devices are used for monitoring limits and converting measured values in speed measurement systems or to make available additional output signals for further control systems.

- Measuring transducers for frequency and temperature
- Limit value switches for frequency, temperature, DC and AC voltages
- Multifunctional devices for measuring up to two speed signals with slip and offset measurement, 2 galvanically isolated signal outputs and 6 relay outputs

**ANALOGUE INDICATORS**

We make instrumentation to your specification
Whether to indicate speed, temperature, pressure, propeller pitch or rudder position. We make instrumentation to your specifications. In addition to different designs (round or square) and sizes, you can define the scale, scale colour, limit range, pointer lighting and much more. Additional functions are available on request, e.g. integrated direction of rotation detection for measuring the speed of reversing propulsion systems, a status LED for showing when limits are exceeded as well as additional signal or relay outputs for signal processing.