SYSTEM-OVERVIEW

Alarm- and Monitoring System

Type : SMK-9003

Version : 2.1

Date : dd.mm yy

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4. Project Management

Amendment : Figures, Drawings

Abbreviations

1. General System Description

The SMK-9003 system is a modular built platform, consisting of various system units (modules) for :

-Alarm- and Monitoring of all critical measured parameters for main engines, electrical engines, pumps, tank systems etc.
All parameters can be recorded, printed out and resolved to a fully documented events history.
Due to the modular architecture the system values to be monitoring are practically unlimited.

-Safety and Shut-Down System on the base of the monitored critical system parameters (e.g. main engine water temperature, lubrication pressure, overspeed etc).
In case of further exceeding the alarm values of a specified amount of parameters the situation can lead to intervention to the propulsion plant like “engine shut down” or cut up (overspeed protection).

-Remote Control for Propulsion system (-engines)
This system part is designed for main engines propulsion control and adaptable to different requirements. The main functions include speed control and gear control thus generating the necessary signals for the engine-control and gear-control interfaces.

Depending on customer demands all three system parts of SMK-9000 can be integrated to a system for total vessel control or each part can be installed separately.

2. Scope of Supply

2.1 SMK-9003 Alarm and Monitoring System

The basic unit of SMK-9003 Alarm and Monitoring System is designed for a total quantity of

- up to 1245 wire-connected Sensors
  - either 992 Digital I/Os (On/Off contacts)
  - or 256 Analog I/Os
  - No RS232 or RS486/RS422 is in the basic subsystem included.

Each basic unit contains a row for up to 8 modules, with possible extention of the same to 3 rows.

There can be more than one basic units.

They can be integrated on a backbone Bus-System.

As Bus Systems the Profibus-DP or the Ethernet/TCP-IP are defined as default.

2.1.1 System Requirements of SMK-9003

Power Supply : 24Vdc (upper/lower tolerances 28.8-/-20.4 Vdc)

Ambient Conditions : -25 ...60 oC (horizontal installation), Humidity 5...95% rH (non condensing), air pressure 1080 ... 795 hPa

Protection : System Components IP 54

Approvals : ABS, DNV, GL a.o.

Signals level :

Analogue I/O 0-10 V, +/- 10V, +/- 5V, 0/4 – 20 mA

Digital I/O 24 Vdc

Load of Digital I/O <=0.5 A

Resolution of Analogue Signals : 10, 12 or (14 bit Input)

Each system possesses one SIEMENS CPU of type S7-314 or S7-315-DP and an LCD graphical 4.5” Display Unit , of Type SIEMENS OP77A. The unit has a membrane keyboard with 23 system-keys and 8 free programmable function-keys.

2.2 System Extensions of Alarm and Monitoring System SMK-9003

2.2.1 Operatinal Panel for Bridge

The display unit for Bridge cosists of a graphical 4.5” LCD Display Panel, with membran keyboard of Type SIEMENS OP77A.
The complete information for each measurement channel and alarm status of the machine is displayed.
Power Supply : 24Vdc (-15% ... +20%)
Ambient Conditions : 0 – 50 oC , 95% rH (non condensing)
Protection : IP65 (front side)

2.2.2 Alarm Indication Panel

That is a Panel with a predefined quantity of alarm lamps for indication on the Bridge station.

2.2.3.1 Operational Panel for ECR

The display unit for ECR cosists of a graphical 4.5” LCD Display Panel, with membran keyboard of Type SIEMENS OP77A.
The complete information for each measurement channel and alarm status of the machine is displayed.
Power Supply : 24Vdc (-15% ... +20%)
Ambient Conditions : 0 – 50 oC , 95% rH (non condensing)
Protection : IP65 (front side)

2.2.3.2 PC Station for ECR

That is a ruggedized PC-Station (manufacturer DELL or SIEMENS) with a 20” LCD-Monitor and Keyboard. As a standard a table station is offered.
Options include other designs such as Monitor with integrated Keyboard and Touch-pad.

Power Supply : 230 Vac / 50 Hz

Ambient Temperature : 35 oC

Operating System: WinXP

Software Platform : WinCC / SIEMENS

2.2.4 Alarm Printer

This Printer is connected to the ECR-Station and intermediate prints out every arrived alarm with date and time stamp.

Power Supply : 230 Vac/50 Hz

Type of Printer : dot matrix printer

(standard type EPSON LQ300+)

2.2.5 Operation Panel for Accomodation Room

The display unit for Accomodation cosists of a graphical 4.5” LCD Display Panel, with membran keyboard of Type SIEMENS OP77A.

The complete information for each measurement channel and alarm status of the machine is displayed.

Power Supply : 24Vdc (-15% ... +20%)

Ambient Conditions : 0 – 50 oC , 95% rH (non condensing)

Protection : IP65 (front side)

2.2.6 Operation Panel for Sleeping Room

The display unit for Bridge cosists of a graphical 4.5” LCD Display Panel, with membran keyboard of Type SIEMENS OP77A.

The complete information for each measurement channel and alarm status of the machine is displayed.

Power Supply : 24Vdc (-15% ... +20%)

Ambient Conditions : 0 – 50 oC , 95% rH (non condensing)

Protection : IP65 (front side)

2.3 Documentation

The system documentation consists of printed documentation for

- final drawings, system wiring, cabling plans and manuals
- language of the documentation is English
-additionally the aforementioned documentation is handed over in electronical form

2.4 Inspection

2.4.1 Inspection of existing System

For inspection is estimated 1 working day plus the travel time from Piraeus and return.

2.5. Commissioning

2.5.1 Commissioning of existing System

For commissioning 4-5 days are estimated plus the travel time from Piraeus and return

2.6 Exclusions of Scope of Supply

To complete the current specification, the following items are not included in the scope of supply and shall be provided by the customer :

1) Installation of the equipment mentioned in “Scope of supply”
2) Network, active network components and network connection works, cabling installation, wiring, mounting materials other than specified.
3) Any sensors and actuators other than specified in the “Scope of Supply”
4) Cable glands
5) Provision of necessary UPS equipment and connection to META equipment other than specified in “Scope of Supply”
6) Expenses of traveling and accomodations
7) Expenses raised by approval authorities.

2.7 Customer's Support

In order for the "Scope of Supply" to be optimally fullfilled, a close cooperation between META-Automation and Customer is required. META-Automation is requesting from customer following support :

2.7.1 Cooperation and Information

META-Automation preassumes that customer

1) cooperates at best efforts, especially regarding the supply of system related information and approvals in order to get through the project phases as scheduled in the project time table.

2.7.2 Support of Resources

META-Automation expects that customer provides –free of charge-

1) Offering of working space for META-Automation's staff during commissioning.

2) Tools, facilities, a telephone line and internet access

3) Commissioning support, if commissioning is performed by META, 1Xelectrician assisting our commissioning engineer during the period of commissioning.

3. Project Time Table

	Phase	Description	Responsible	Duration [Weeks]	Remarks
1	Start - Kick-off	Project start & aggreement on project schedule, milestones	Customer-META	1	
2	Definition of project related documents	-I/O list -Distribution of I/Os and interfaces -Description of communication protocols and address-lists (if applicable)	Customer	2 (after 1)	
3	Preparation of approval drawings (if applicable)	Preparation of all approval related drawings by META -all dimensional drawings -detailled block diagrams -external wiring diagrams -I/O connection diagrams	META	2 (after 2)	
4	Confirmation and details	Required information to be provided: -confirmation of approved drawings -detailled I/O information -detailed communication information	Customer	1 (after 3)	
5	Preparation of System	Realisation of system hardware and software	META	6 (after 4)	
6	Customers approval	Approval of all pages and drawings provided by META	Customer	1 (after 5)	
7	Acceptance test in META premises	Execution of Factory Acceptance Test in META's facilities	META	1 (after 6)	
8	Delivery	Delivery of entire system to customer	META	1 (after 7)	
9	End of Project			15 total	

4. Project Management

META will designate a person as project manager, responsible for scope of supply, documentation, time schedule but also for changes.
Customer is also requested to appoint a project manager as main contact person responsible for the project customerside.
These both responsible persons will coordinate the project in order the targets to be achieved.

At the start of the project a meeting (kick-off) will take place with following agenda :

1) Definition of system configuration, hardware, software, network requirements
2) Project time plan with relevant milestones for components deliveries
3) other items of interest.

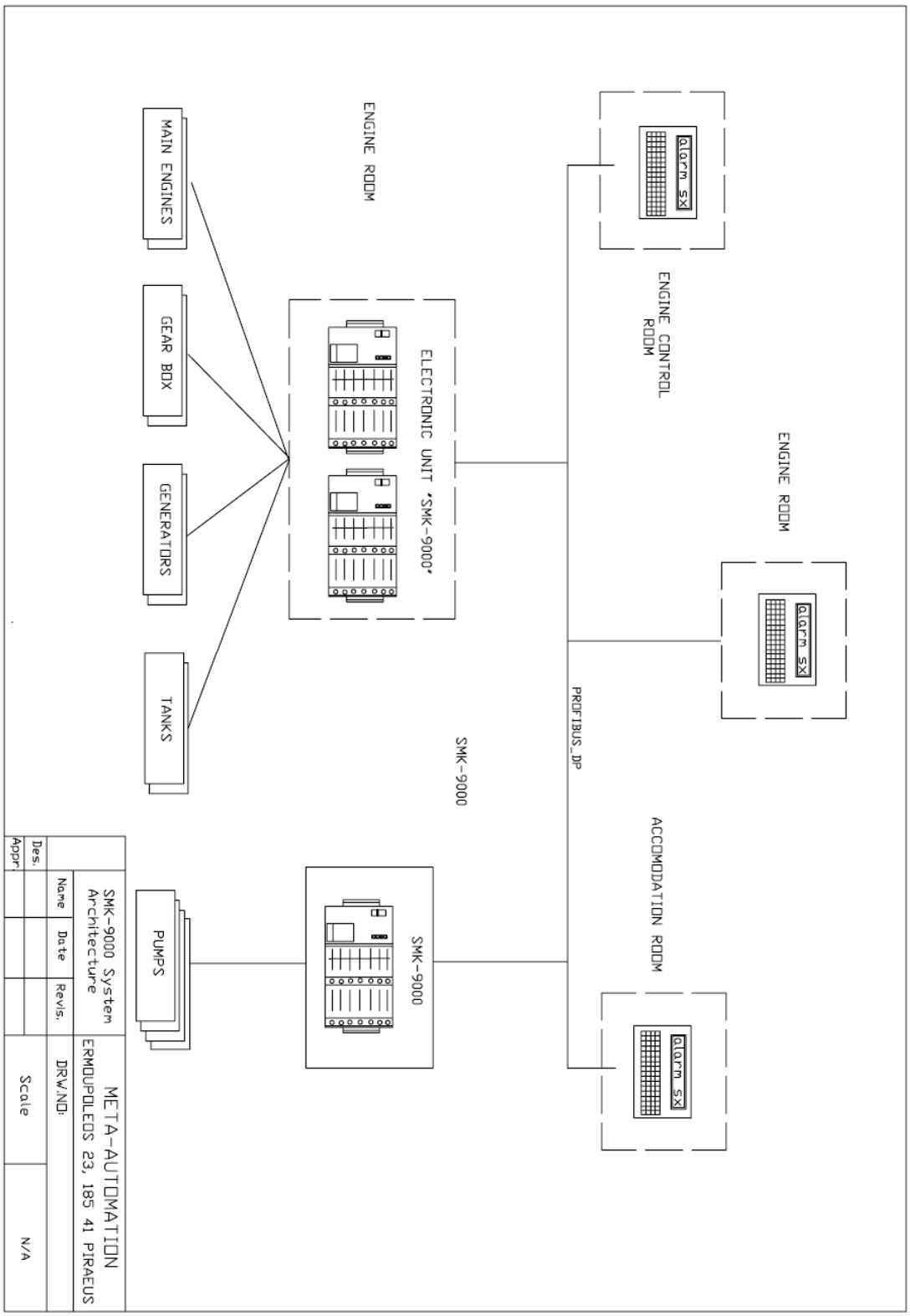

Fig 1: SMK-9003 , System Architecture

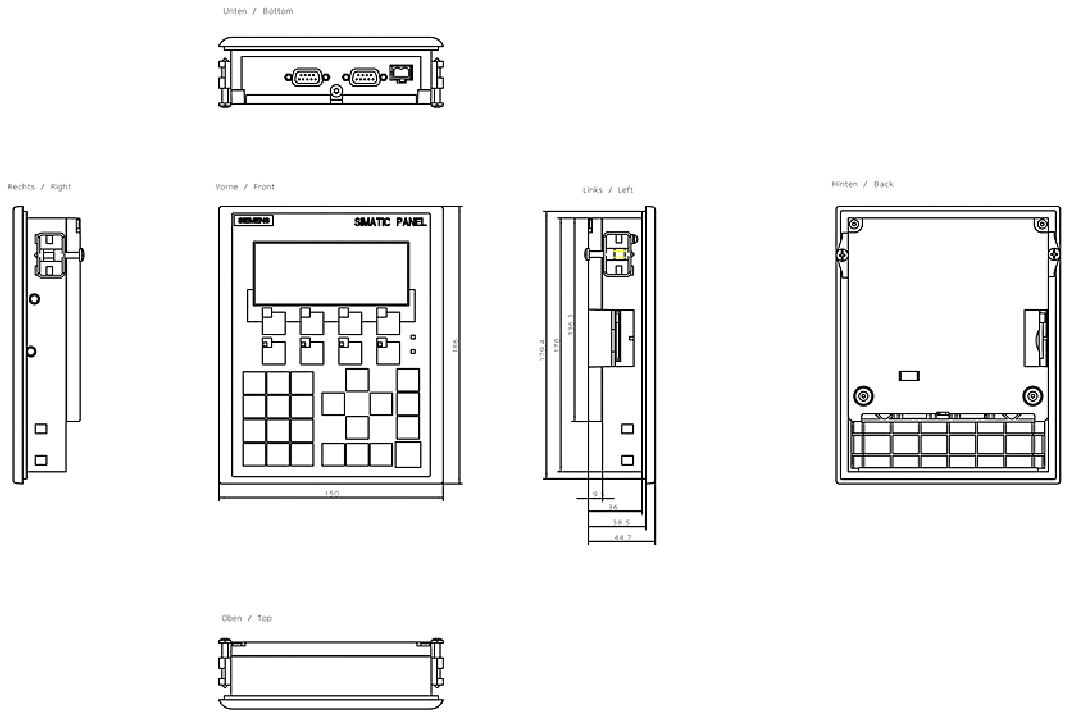

Fig 2 : SMK-9003, Operator Panel – Display Unit