

ACONIS - 2000

Advanced Control & Integration System



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Hyundai ACONIS series offers the operator full integration of all control & automation function in combination with several systems such as integrated bridge system, CCTV, internet and ship's computer systems.

Newly improved ACONIS-2000 has been designed considering the operator in mind, task oriented with a modular expandable and open system architecture, offering functional integration rather than physical installation of existing equipment.

When you choose the system, you will have benefits as follows.

- Easy ship networking (interface to other system)

- All graphic control

- Various I/O device

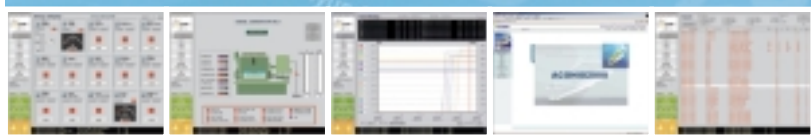
- Simple operation

- Long life

- Easy maintenance

- Refined graphic user interface

- Web basis monitoring



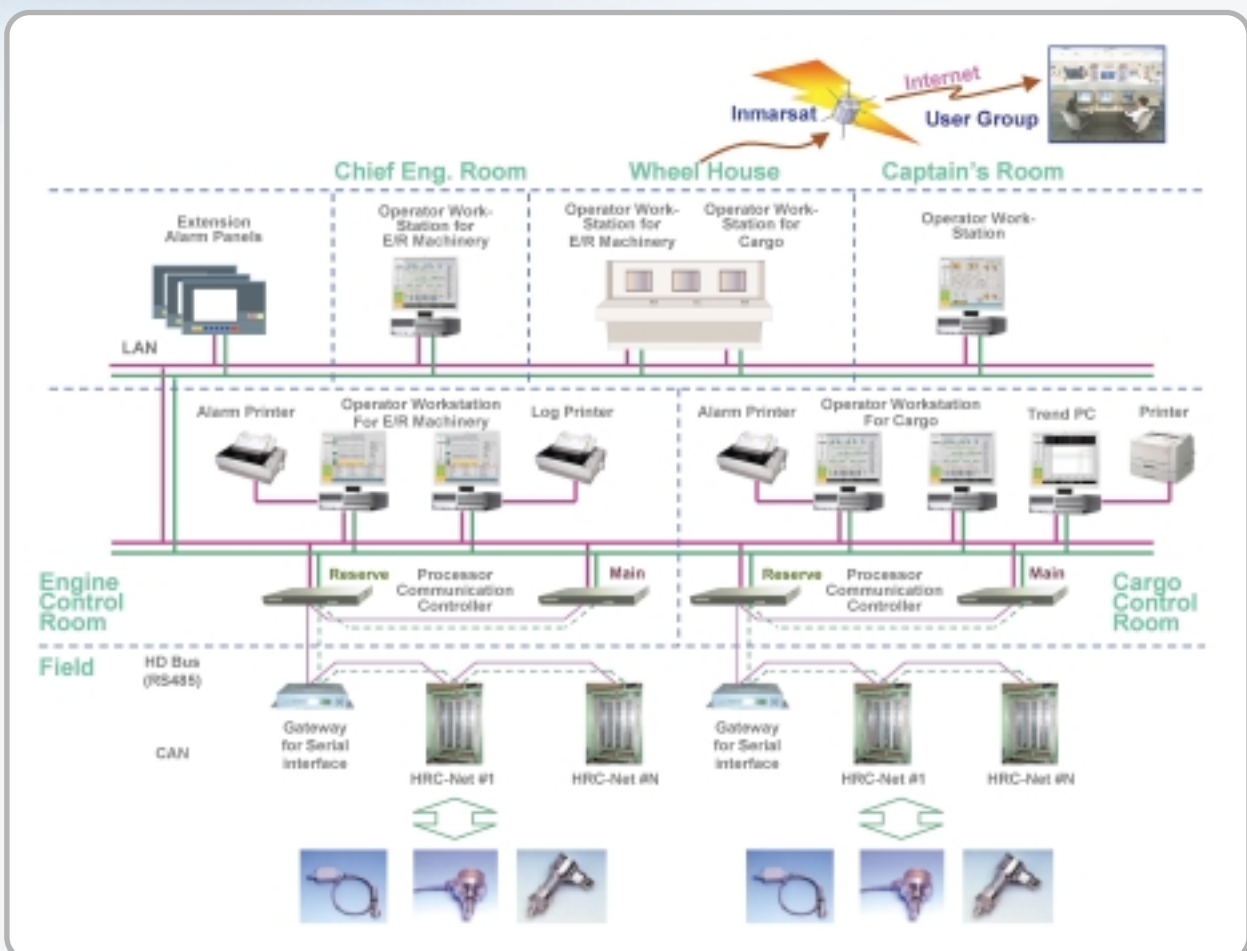
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System Overview





UMS Alarm & Monitoring System

- Function of UMS system
- Basic I/O operation
- Extension Alarm System (EAS)
- Report systems

Stand-by Starter/Motor Control option

- Automatic start-up of stand-by pumps In case of pressure drop
- Sequential start-up after black-out
- Remote start/stop of single motor

Cargo/Ballast Control & Monitoring option

- Control of valves, pumps and level gauging
- Include bilge system, fuel oil bunker system and fresh water bunker system
- On graphic display, full presentation and control
- Measurement of temperatures, pressures, and levels

Diesel Starters option

- Start/stop of engines
- Automatic shut-downs
- Stand-by selection
- Priming pump control
- Diesel/heavy fuel oil change over

Power Management System option

- Automatic synchronizing
- Automatic load-sharing
- Load dependent start/stop
- Blocking of heavy consumers
- Black-out monitoring
- Balanced/unbalanced load sharing

PID Control option

- Control of temperature, level, flow, pressure and other control functions
- Control functions of P, PI or PID types

Hull Stress Monitoring option

- Bending moment, slamming and fatigue analysis at sea.
- Measurement of LBSG, accelerometer and other sensors.

Reefer Container Monitoring System option

- The status monitoring of container
- Audible alarm and information are supported

Ship Performance option

- Functions for optimum operation of the ship
- Trend display for speed, trim, ME RPM and fuel consumption

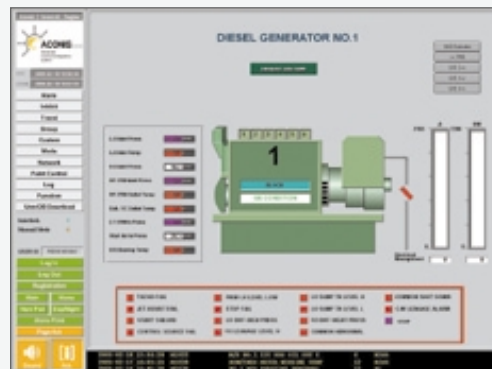
Group Display

- Various channels such as pressure, temp. level and binary can be incorporated into a page.
- Status is indicated by bars, meters numbers and colors.
- Can change alarm limits and time delays and can set or clear interlock/suppress.
- Shows A/D errors and sensor faults.



Graphic Display

- No limitation of page.
- Gives an overview of the process and indicates the current status of valves, motor, generator, measurements and etc.
- The pictures are dynamically linked to the process and more detail information can be shown in pop-up window when the cursor is on the dynamic symbol.



Alarm Display

- Shows the alarm events, in chronological order.
- 34 alarm display pages are available
- 30 alarm messages per page can be available.
- Occurrence time, tag name and description, status, value, EGU etc. can be shown.
- Alternative display of alarm page or history page.
- Alarm display for each extension alarm group.



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- The screenshot displays the ACCOBS Trend Display software. The interface is divided into several sections:
- Header:** Includes the ACCOBS logo and the title "Trend Display".
 - Navigation Sidebar:** Contains buttons for Home, Units, Change, Settings, Reports, Reports, Paper Control, Units, Parameters, and User/ID Download.
 - Main Display Area:**
 - Station:** 104-200-00
 - Date:** 10/2/2012
 - Graph:** A line graph showing multiple data series (red, yellow, green, blue, purple) plotted against time. The x-axis represents time from 10/1/2012 to 10/2/2012. The y-axis represents values from 0 to 100.
 - Table:** A table below the graph listing data points for various parameters (e.g., 104-200-00-01, 104-200-00-02) with columns for Date, Time, Value, and Unit.
 - Bottom Status Bar:** Displays "Date: 10/2/2012", "Time: 10:00", and "User: 104-200-00-01".

- [illegible]

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- The screenshot displays the ACORN Energy Management System (EMS) interface. The top navigation bar includes 'POWER CONTROL' and 'SYSTEM MONITORING'. The left sidebar contains 'SYSTEM MONITORING' and 'POWER CONTROL' tabs. The main display area shows four engine units (1, 2, 3, 4) with their respective status (ON/OFF), power output (kW), and fuel consumption (L/Hr). Below the engine units are four vertical bar charts showing power output over time. The bottom section displays a large digital readout (DRO) for power output (kW) and fuel consumption (L/Hr). The interface is designed for real-time monitoring and control of the power plant.

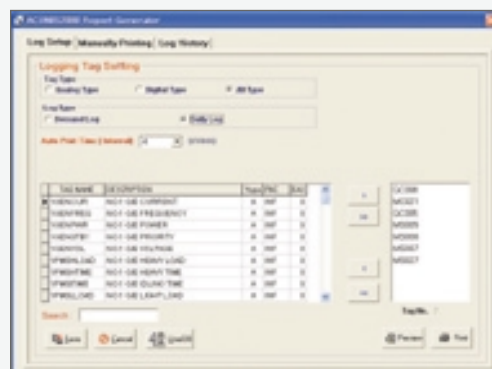
Inhibit Display

- Shows the inhibited alarm events by suppress or interlock, in chronological order.
- 34 inhibit display pages are available.
- 30 inhibited alarm messages per page can be available.
- Occurrence time, tag name, description, status, value, EGU can be shown.



Report Display

- Log report printout for both demand and daily log.
- Consists of routine, individual point, trend and alarm report.



System I/O Display

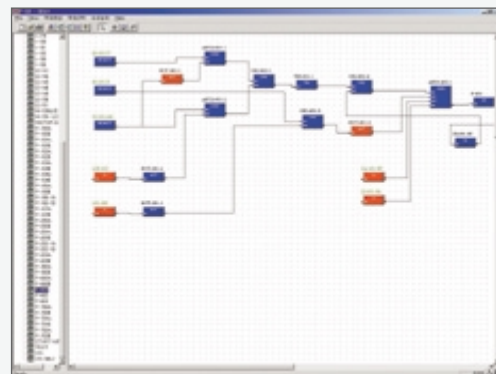
- Display HRC-NET MPM status, I/O card status and I/O point status.
- Can control I/O card points
- Display engineering value.
- Detailed information can be shown for each points.





Function Block Diagram

- The builder based on International Standards(IEC1131-3) to manage the local I/O DB and various control logic DB.
- Consists of editor, compiler and downloader.
- The control logics made up by using FBD builder are on-line downloaded into the processor controllers.
- The simulation of control logics and the display of the results.



Help Display

- Shows trouble shooting information for how to correct the individual fault for system alarms.



Web Server Display

- Web server/client system utilizing HTTP technology.
- Web page transformation by using a graphic resource of local system.
- Representation of Web distributed server/client through remote method invocation.
- Common-share of local database through Java database connectivity.



Specification

1. System Capacity & Specification

Gateway (Processor Communication Controller]	32 Stations (Max.)
HRC - net System	8 Stations (Max.) per gateway
Total Tag	40960 Points (Max.)
I/O Board	- 16DI, 4PI - 16DO, 8AO - 16AI
Operator work Station	Max. 64 Stations
Alarm Printer	Max. 8 Sets
Log Printer	Max. 8 Sets
Temperature	0 ~ 75 (Dry Heat) / 55 (Wet)
Relative Humidity	96% RH
Vibration	0~100 Hz, 1.0 G (X, Y, and Z Axis)
Accuracy	± 1%

2. Communication Specification

2.1 System Communication

Distance	150m Without Repeater (Extensible to Repeater)
Speed	10/100 Mbps
Cable	FTP or STP Category 5 LAN Cable
Protocol	Ethernet, TCP/IP (Dual Network)

2.2 Processor Controller Communication

Distance	250m Without Repeater (Extensible to Repeater)
Speed	1 Mbps
Cable	Shielded Twisted Pair Cable (Not thinner than AWG22)
Protocol	CAN 2.0B, HDLC (Dual Network)

3. Gateway (Processor Communication Controller)

CPU	32 bit Processor
Clock Speed	100 MHz
Flash Memory	16 Mbyte
RAM	32 Mbyte
Protocol	Ethernet, TCP/IP(Dual Network)
Communication Speed	10/100 Mbps
Communication Port	Serial Port (RS232C, RS485 and RS422)
Scan Time	0.1 ~ 1 Sec.

4. HRC - net System

CPU	32 bit Processor(DSP)
Main Memory	4 Mbyte SRAM, 4 Mbyte FRAM
I/O Card Capacity	64 I/O Card
I/O Point	Analog or Digital 4096 Points (Max.)
I/O Scan Time	10 msec
I/O Card	net - MPM : Main Process Module (Dual Module) net - DIM 16 : Digital Input Module (16 Points) net - DOM 16 : Digital Output Module (16 Points) net - AIM 16 : Analog Input Module (16 Points) net - AOM 8 : Analog Output Module (8 Points) net - PIM 4 : Pulse Input Module (4 Points)
I/O Signal	Digital Input : Dry Contact Digital Output : Dry Contact Output Analog Input : 4~20 mA, 1-5 V, 0-5 V, PT100 Analog Output : 4~20 mA, Max. 750 Pulse Input : 24 V, Dry Contact (50 mS~10 KHz)
Scan Time	0.1 ~ 1 Sec.

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5. Operator Work Station

CPU	Pentium 2.8 GHz Processor Higher
Main Memory	256 Mbyte SDRAM
HDD	80GB UATA
Communication	LAN 10/100 Mbps (Dual Network)
Monitor	17, 19 inch
Monitor Resolution	1280 x 1024 Pixels (Max.)
Color	True Colors (Blink Support)
Functional Keyboard	Membrane Type
Pointing Device	Track Ball

6. Extension Alarm System

CPU	8 bit one chip Processor
Main Memory	1Mbyte
Communication	Ethernet, TCP/IP, 10/100 Mbps
Communication Cable	FTP or STP Category 5 LAN Cable
Display	LCD (320 x 240 dot, Black & White)
Graphic Memory	32 Kbyte

7. System Dimension and Others

Gateway (Processor Communication Controller)	Dimension	45(H) x 423(W) x 220(D)mm
	Weight	About 3.4 Kg
	Power Supply	AC 220 V
HRC - net System	Dimension (MPM)	125(H) x 157(W) x 63.6(D)mm
	Dimension (I/O card)	194(H) x 155(W) x 83.2(D)mm
	Power Supply	DC 24 V
Operator Work Station	Dimension	150(H) x 344(W) x 420(D)mm
	Weight	About 10 Kg
	Power Supply	AC 220 V
Keyboard (with tracker ball)	Dimension	188(H) x 463(W) x 30(D)mm
	Weight	About 2 Kg
Printer	Dimension	280(H) x 432(W) x 420(D)mm
	Weight	About 3.5 Kg
	Power Supply	AC 220 V
	Power Consumption	100 W
EAS	Dimension	156(H) x 282(W) x 68(D)mm
	Weight	About 1 Kg



Quality Assurance & Quality Control (QA/QC)



HYUNDAI ACONIS

Marine Monitoring & Control System possesses type approval certificates for higher class requirement such as KR, ABS, LR, DNV, BV, NK and GL and is thoroughly tested and certified for vibration, damp heat and EMC.



Another important part of the type approval procedure is proper documentation and software security.

The QA/QC procedures cover all factors affecting the product so that the customer gets a high quality product at an economical price.