ACONIS-DS

Automation Communication & Navigation Information Solution

HYUNDAI ELECTRIC

Smart Ship Solution the Future of Shipping

Hyundai ACONIS is the smart ship solution. It offers full integration of all control & automation function in combination with integrated bridge system, CCTV, internet and ship's computer systems. Newly improved ACONIS-DS offers user-friendly graphic interface, remote maintenance and diagnosis function, and creative hardware design with the user in mind.

- **ISIG**: Intra-Ship Integrated Gateway

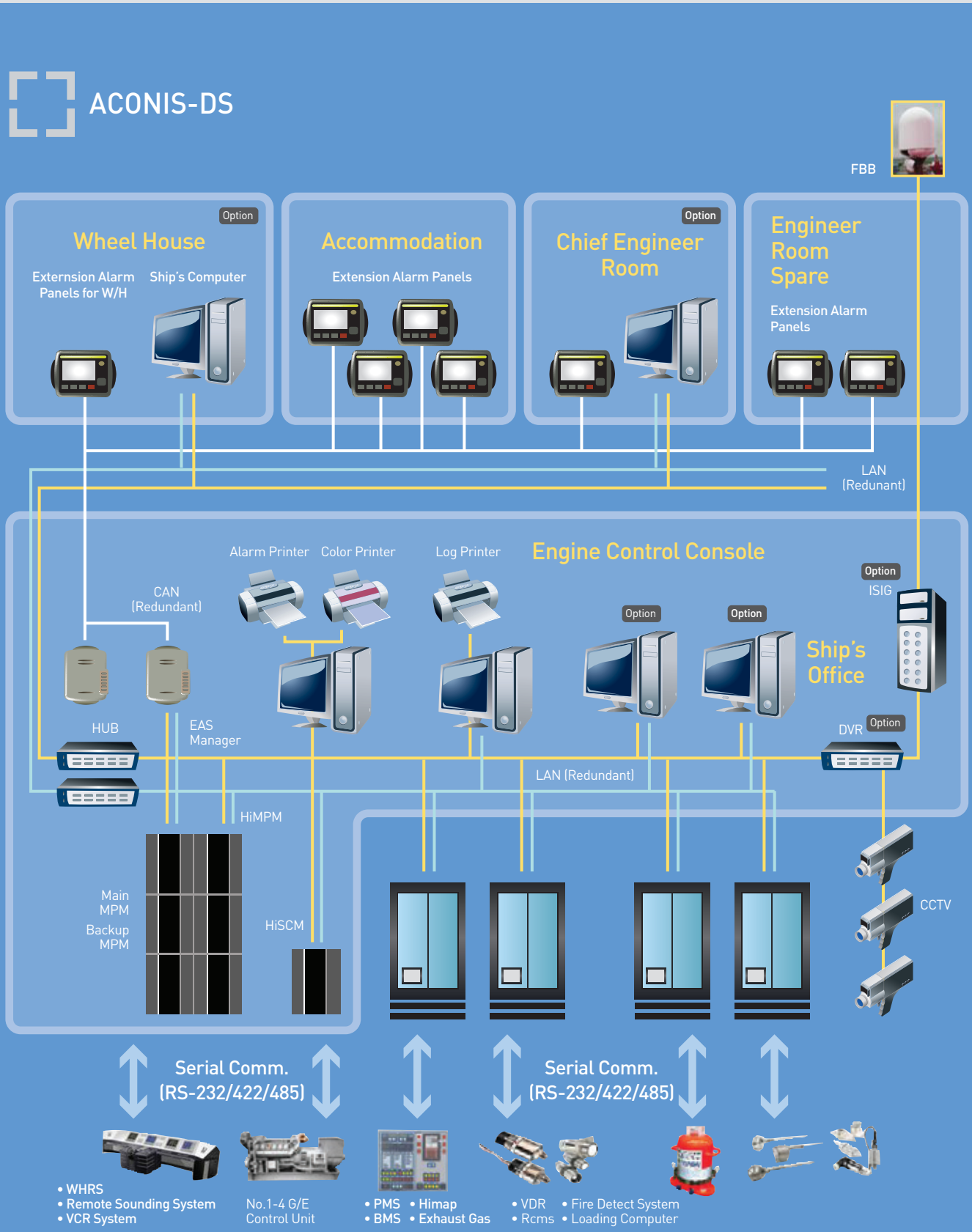
• **INMARSAT**

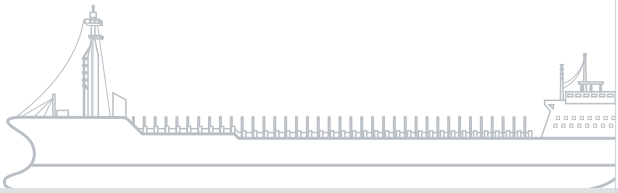
• **RMS**: Remote Maintenance Server

Benefits

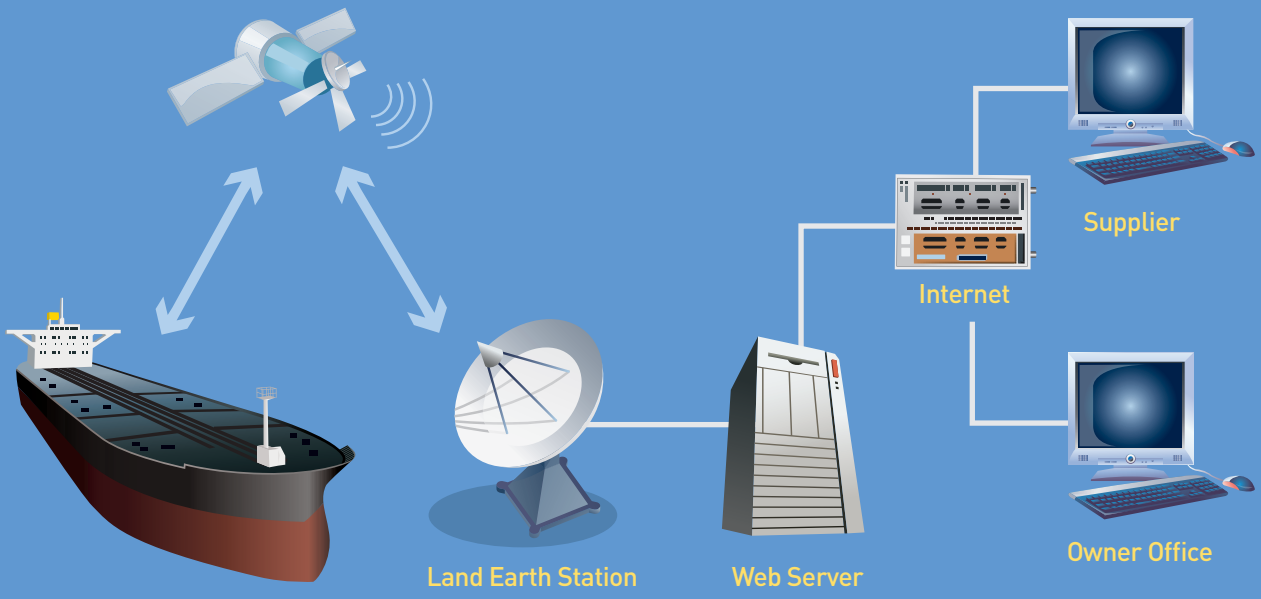
- Easy system interface
- All graphic control
- Various I/O device
- Simple operation
- Long life
- Easy maintenance
- Refined graphic user interface
- Web basis monitoring
- Remote Maintenance and Diagnosis

System Overview





SMART SHIP SOLUTION

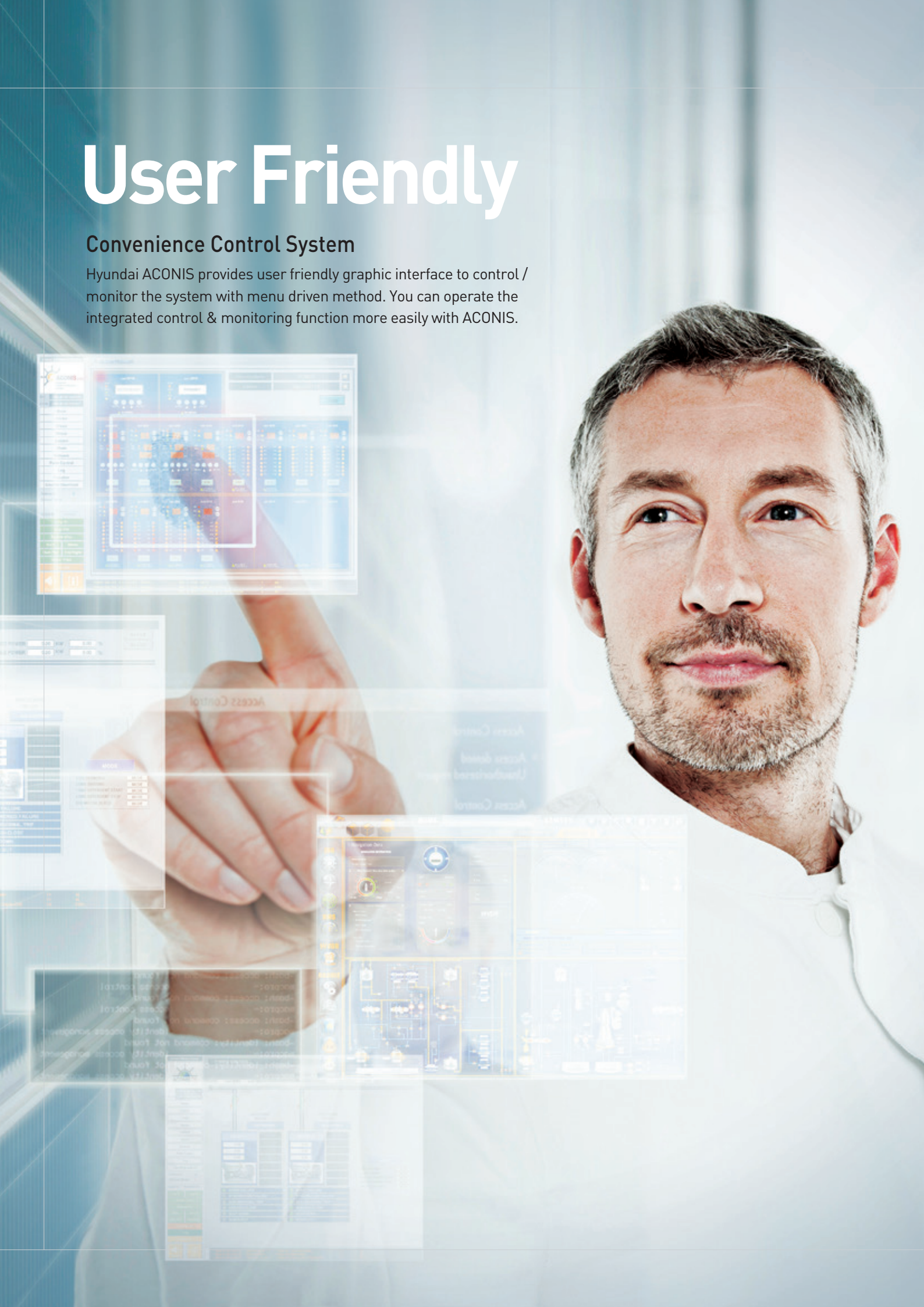


- **Conventional Function**
  - UMS Alarm & Monitoring System
  - BMS Interface
  - Diesel Engine Interface
- **Advanced Function** (Option)
  - CCTV System
  - Ship Performance
  - Dual Officer with Control Right
  - Soft Load Shedding
  - Anti Heeling System
- **Eco-friendly Function** (Option)
  - Ballast Water Treatment System
  - Waste Heat Recovery System Interface
- **Remote Maintenance** (Option)
  - Remote Monitoring
  - Remote Diagnostics
- **Additionally Applicable Function** (Option)
  - Power Management System
  - Cargo Monitoring System
  - Reefer Container Monitoring System
- **Control Function** (Option)
  - Stand-by Pump/Motor Control
  - PID Control
  - Ballast Control
  - Engine Room/Cargo Hold Fan Control

User Friendly

Convenience Control System

Hyundai ACONIS provides user friendly graphic interface to control / monitor the system with menu driven method. You can operate the integrated control & monitoring function more easily with ACONIS.

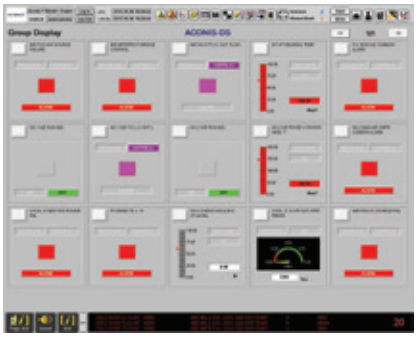


Graphic Interface

We provide user friendly graphic interface for easy Installation & maintenance.

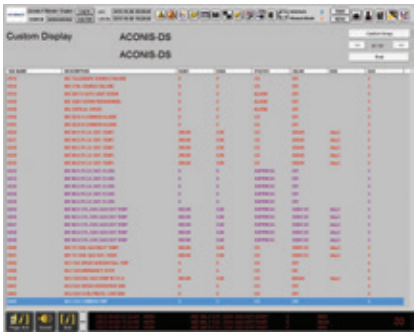
Group Display

- Various channels such as pressure, temperature, 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.



Custom Display

- No page limitations.
- Custom display is composed of user selected channels.
- A total of 35 different channels can be registered in a custom display page.
- Shows description, high and low limits of alarm, status, value, EGU of each channel.
- Status is indicated by text and colors.
- Can change alarm limits and time delays and can set or clear interlock/suppress.



Trend Display

- No page limitations.
- A total of 12 channels per page can be registered.
- Shows the historical condition of process variables.
- The time interval can be set with the range from min. 10 minutes to max. 2 months.
- Shows measurement value for each in line with the movable vertical guideline.

Self-Diagnosis Display

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

Web Server Display

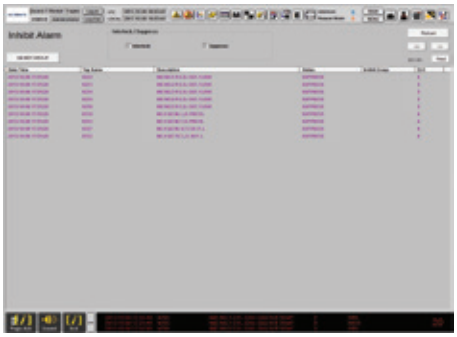
- Web server/client system using HTTP technology.
- Web page transformation by using a graphic resource of local system.
- Representation of Web distributed server/client through remote method invocation.
- Common-share of local database through Java database connectivity.

CCTV Display

- Max. 16 CCTV cameras Interfaced
- Pan/tilt and zoom in/out available on AMS
- Auto, Manual focus function
- Record function using motion detection
- Various screen divisions
- Camera status display
- CCTV display on AMS's mimic

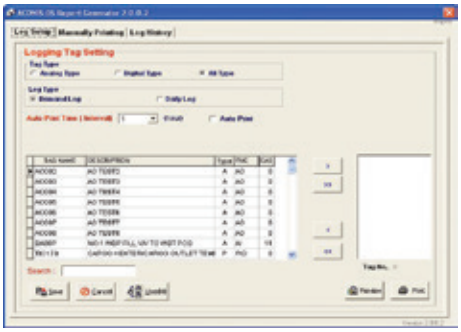
Inhibit Display

- 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 also be shown.



Report Display

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

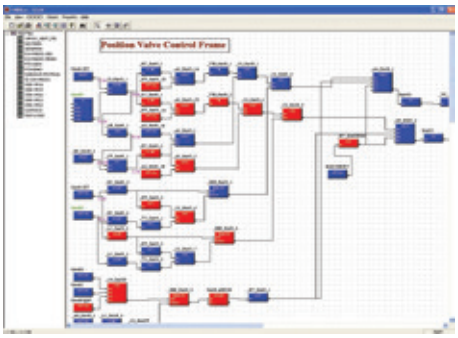


System I/O Display

- Display 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 point.

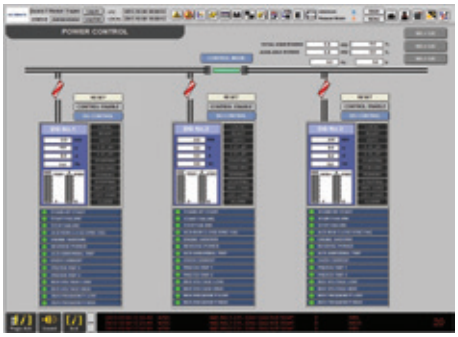
Function Block Diagram

- 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.
- Simulates the control logics and displays the results.



Power Control Display

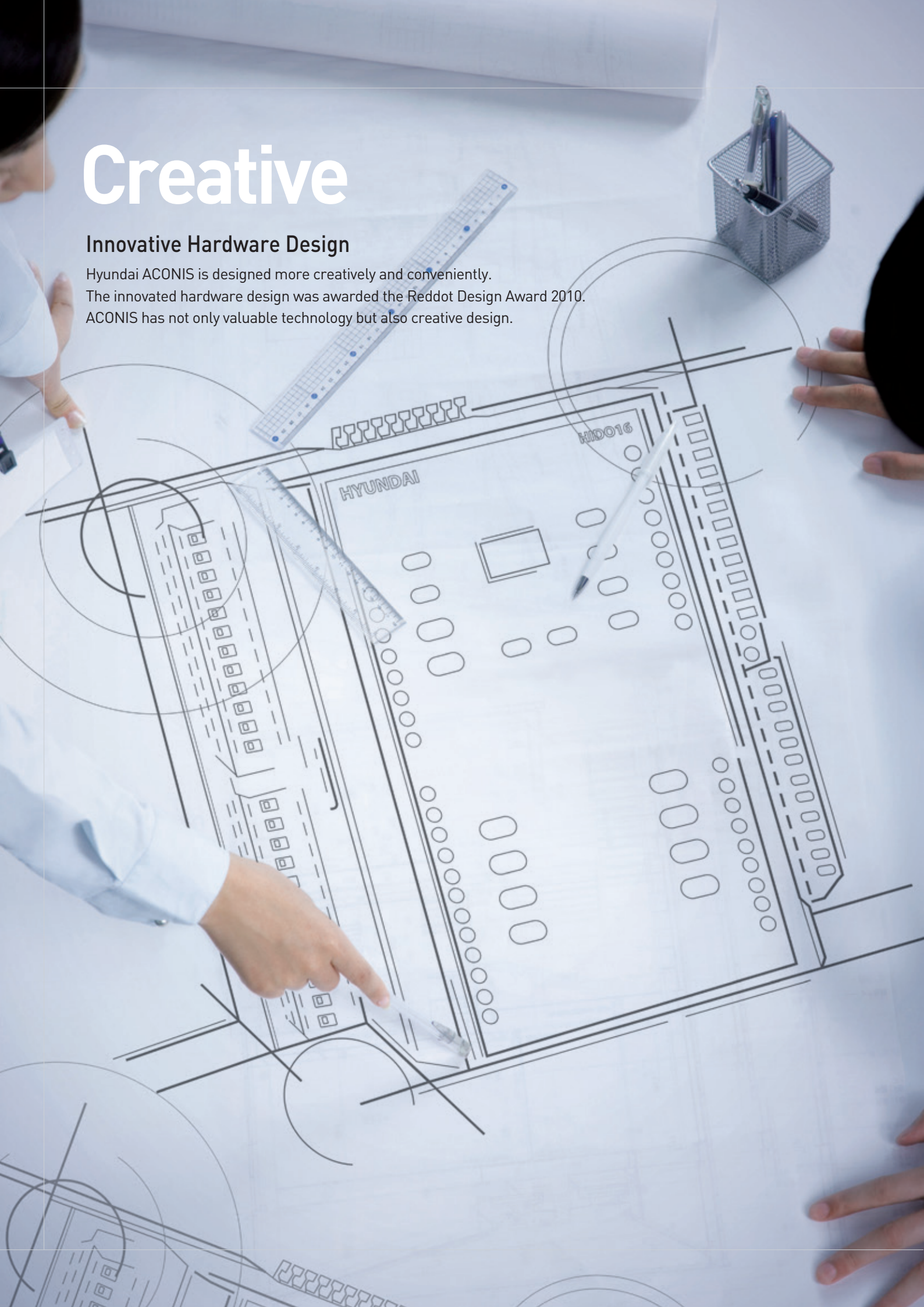
- Can control Max.5 generators in a page.
- Can perform start, stop, stand-by selection, and reset for each generator.
- Shows total used power, voltage and frequency as well as voltage and effective power of each generator.
- Shows various alarm messages for each generator set.
- Can select mode such as auto/manual or on/off for synchronizing, load sharing, unbalanced load sharing, load dependent start and stop.



Creative

Innovative Hardware Design

Hyundai ACONIS is designed more creatively and conveniently.
The innovated hardware design was awarded the Reddot Design Award 2010.
ACONIS has not only valuable technology but also creative design.



Innovative Hardware Design

Winner of Reddot Design Award 2010
Advanced & Creative Design

Designpreis Deutschland 2011 NOMINEE

The Design Award of the Federal Republic of Germany is the country's highest distinction in the field of design. It is known as the 'Prize of Prizes'. The reason: no other design award sets such strict criteria on entries. Thus, a company can only enter the competition for the Design Award if its product has already been awarded a national or international design prize.
Another precondition for entry is that companies must have been nominated by the Ministries and Senators of the Federal States or by the Federal Ministry of Economics and Technology.

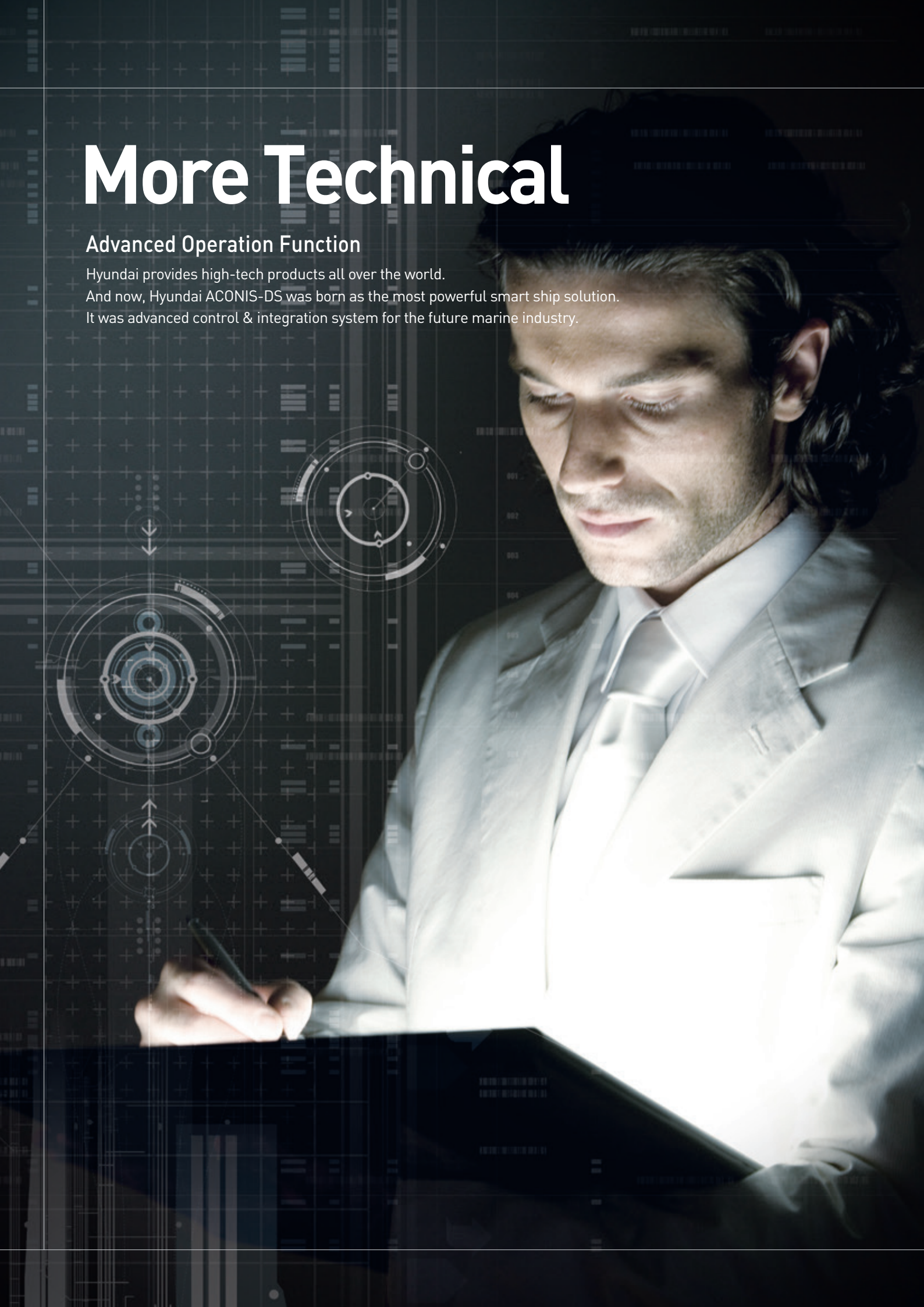
reddot design award

With more than 12,000 submissions from more than 60 countries, the international red dot design award" is the largest and most renowned design competition in the world.
It is divided into the red dot award: product design", the red dot award: communication design" and the red ed dot award: design concept.
The award-winning products are put before an international public in the red dot design museum.

More Technical

Advanced Operation Function

Hyundai provides high-tech products all over the world.
And now, Hyundai ACONIS-DS was born as the most powerful smart ship solution.
It was advanced control & integration system for the future marine industry.



Product Specification

ACONIS is the best ship monitoring solution in existence.

1. System Capacity & Specification

Gateway (Processor Communication Controller)	16 Stations (Max.)
Total Tag	160000 Points (Max.)
I/O Board	- 16DI, 16RT - 16DO, 8AO - 16AI
Operator work Station	Max. 16 Stations
Alarm Printer	Max. 16 Sets
Log Printer	Max. 16 Sets
Temperature	0-75˚C (Dry Heat) / 55˚C (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	Ethemet, TCP/IP (Dual Network)

2.2 Processor Controller Communication

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

3. Main Processor Module (MPM)

CPU	32 bit Processor
Clock Speed	400 MHz
Flash Memory	512 MB
RAM	128 MB
Protocol	Ethernet, TCP/IP (Dual Network)
Communication Speed	10/100 Mbps
Communication Port	Ethernet (Dual Network) CAN 2.0B (Dual Network) HDLC (Dual Network)
I/O Card Capacity	64 I/O Card
I/O Point	Analog or Digital 1024 Point (Max.)
I/O Scan Time	10 msec
Power Consumption	8 W

4. Input/Output Module

I/O Card	HiDI16 : Digital Input Module (16 points) HiDO16 : Digital Output Module (16 points) HiAI16 : Analog Input Module (16 points) HiAO8 : Analog Output Module (8 points) HiRT16 : Resistance Thermometer Module (16 points)
I/O Signal	Digital Input : Dry Contact, 24 V Pulse Input (Max. 10 KHz) Digital Output : Dry Contact Output Analog Input : 4-20 mA, Resistance Thermometer PT100 Analog Output : 4-20 mA, Max. 750 ohm

5. Smart Control Module (SCM)

CPU	32 bit Processor
Clock Speed	400 MHz
Flash Memory	512 MB
RAM	128 MB
Protocol	Ethernet, TCP/IP (Dual Network)
Communication Speed	10/100 Mbps
Communication Port	Ethernet (Dual Network) + Ehternet 2 channel Serial 8 Channel (RS422, RS485, RS232)
Interface Protocol	MODBUS TCP/IP, MODBUS RTU, NMEA, etc.
Power Consumption	8 W

6. Extension Alarm System (EAS)

CPU	8 bit Microcontroller
Protocol	CAN 2.0B (Dual Network)
Communication Port	Ethernet (Dual Network) CAN 2.0B (Dual Network)
Communication cable	Shielded Twisted Pair Cable
Display	LCD (240 X 128 dot, Black&White)
Power Consumption	8 W

7. EAS Manager

CPU	32 bit Processor
Clock Speed	400 MHz
Flash Memory	512 MB
RAM	128 MB
Protocol	Ethernet, TCP/IP (Dual Network)
Communication Speed	10/100 Mbps
Communication Port	Ethernet (Dual Network) CAN 2.0B (Dual Network)
Power Consumption	8 W

8. Operator Workstation

CPU	Intel Core i3 3.3G
Main Memory	2 GB
HDD	250 GB
Communication	LAN 10/100 MBPS (Dual Network)
Monitor	19, 20, 23, 24 inch
Monitor Resoluton	1280 x 1024 Pixels
Color	Ture Colors
Function Keyboard	Membrane Type
Pointing Device	Track Ball
Power Consumption	56.06 W (Max.)

9. System Dimension and Others

MPM	Dimension	152(H) x 157.6(W) x 71.5(D)
	Weight	About 3.4 kg
	Power Supply	DC 24 V
SCM	Dimension	152(H) x 157.6(W) x 71.5(D)
	Weight	About 3.4 kg
	Power Supply	DC 24 V
IOM	Dimension	152(H) x 157.6(W) x 71.5(D)
	Weight	About 3.4 kg
	Power Supply	DC 24 V
EAS	Dimension	175(H) x 230(W) x 40(D)
	Weight	About 1 kg
EAS Manager	Dimension	118.8(H) x 138.5(W) x 36.8(D)
	Weight	About 2 kg
	Power Supply	DC 24 V
Operator Workstation	Dimension	154(H) x 348(W) x 390(D)
	Weight	About 20 kg
	Power Supply	AC 220 V
Keyboard (with trackball)	Dimension	188(H) x 463(W) x 30(D)
	Weight	About 2 kg
Printer	Dimension	366(H) x 159(W) x 275(D)
	Weight	About 4.4 kg
	Power Supply	AC 220 V
	Power Consumption	23 W

Leading the global marine industry
with high technology of Hyundai ACONIS

Integrity

High Quality Satisfaction

Hyundai Electric was recognized as one of faithful companies in the world by customer because we have provided qualified products in the realm of heavy industries.
We will be a faithful partner of you forever.

Quality Assurance & Quality Control (QA/QC)

Hyundai ACONIS prove its great value by international quality certifications.

Hyundai ACONIS

Marine Monitoring & Control System possesses type approval certificates
for 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.

Global Service Network

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