GOOILAND ELEKTRO
process automation

SCADA systems

The most advanced HVAC management systems available

Optimize your HVAC assets and experience full potential

- Total control
- Energy management
- Remote access

Discover the power of automation

INNOVATIVE AUTOMATION AND CONTROL SYSTEMS

GOOILAND ELEKTRO started in the 1980's designing PLC controls particularly focused on process control. At that time we were one of the first companies who were able to use CAD in electrical engineering.

Now you can rely on high-end automation solutions and complete durable systems. With a modern equipped workshop along with today's technical development you are assured of in-house produced systems. From the initial software development to manufacturing and testing.

Looking for a customized or standard solution? With **GOOILAND ELEKTRO** you will get:

- Powerful automation and control systems
- Customization and flexibility
- Innovative solutions
- Complete spectrum, from pre-engineering to service & maintenance
- Internal training for each system

For more information about products and services, blogs and cases, visit our website
www.gooiland-elektro.com

This is what full control looks like

INTRODUCING THE SCADA SYSTEM

All relevant data just a click or swipe away.

SCADA is short for **S**upervisory **C**ontrol **A**nd **D**ata **A**cquisition. This is a software layer designed to centrally control and acquire data from all assets within the HVAC system. It gives you full access to all the systems functions from one centralized computer or even a web application.

Our HVAC control SCADA platforms come in three variants:

- Pro-version
- Px-version
- HPx-version

Whichever you choose, from the solid Pro version to the fully customizable HPx version, with every product you are ensured of easy configuration and an intuitive user interface. Switch seamlessly between cabin parameters and chiller readouts.

YOU ARE IN CONTROL.

Pro PROFESSIONAL	Px PERFORMANCE	HPx HIGH PERFORMANCE
Control & Monitoring assets **Static display**	Control & Monitoring assets **Static 2D graphics**	Control & Monitoring assets **Animated 3D graphics**
Trend data logging to SQL **Live trend data**	Trend data logging to SQL **Live trend data (3 months)**	Trend data logging to SQL **Live trend data (6 months)**
Damper overview **Dampers only**	Damper overview **Deck & dampers**	Damper overview **Detailed deck & dampers**
	Night & Eco mode **Manual control**	Night & Eco mode **Custom modes**
	Additional fans **Overview**	Additional fans **Overview deck mimic location**
		Add rooms & assets **For quick access**
		Historic alarms **Filter by system**
		Custom data exports **Running hours, temps and more**

SCADA explained

SCADA has its origins in the oil & gas, utility and manufacturing industries. These sectors used to rely on plant personnel to monitor and control industrial processes like pushing buttons and turning valves and dials for analogue systems. Plant production processes therefore needed to be manned day and night.
Over the course of time humans were replaced by relays, timers and controls to assist in the supervision and control of processes. Mainframes communicated on a very local level and little by little more machines were connected to each other. The first real SCADA program came with the early PLCs back in the 1970s.
A PLC or Programmable Logic Controller is a small industrial computer with different I/Os, input and outputs. It has a processor running inside and a custom program which it follows by reading the input signals and changing outputs based on the program conditions.

How does SCADA work?

In short, SCADA is a graphic digital control system architecture that connects all PLCs and collects, examines and processes data in real time.
At level 0 you will find field devices such as temperature, pressure and flow sensors, plus three-way valves, fan motors, pumps and other final control elements such as fire dampers and air valves.
Level 1 devices are the input and output modules such as PLCs but also local operator devices like touchscreen HMIs (Human Machine Interfaces). On level 2 we find the SCADA computer which pulls all the information from the system and displays it to the supervisor via an advanced mimic program.

Why is SCADA important?

A SCADA system offers many advantages, including major manhour savings due to its central geographical control element. Everything remains manageable on a ship with one or two AC units and a chiller centrally placed within the vincinity of the engine room. But on a large vessel, with more than a dozen AC rooms divided all over the vessel, controlling and supervising all HVAC systems from a central spot in the control room is a genuine delight.
And SCADA offers more possibilities such as simultaneously changing multiple setpoints or switching whole decks into energy-saving mode with one swipe.
The more advanced the SCADA system, the more data you get, like animated displays of AC units showing all parameters in real time. With the adoption of a SQL database the SCADA system is able to save data for up to two years. This gives easy access to historical trending and alarms and is a powerful tool for troubleshooting and maintenance.

The future of SCADA

The software behind SCADA is still advancing, with every iteration becoming smarter and offering more possibilities. Future iterations can be programmed in such a way that they read the HVAC system and its parts, making suggestions on how to solve an alarm or schedule maintenance stops and spare part replacements. Such a self-diagnosing system enhances the ease of operation for the installation.
The internet of things (IoT) is also opening up new possibilities. Instead of monitoring the HVAC system of one vessel, you can control the systems of an entire fleet from a centralized control centre on shore. This does of course mean more level 0 devices will need to be placed and wired.

Like to know more about SCADA and which options could be implemented on your vessel? Visit our website: **www.gooiland-elektro.com**

Compare the systems

GENERAL	Pro	Px	HPx
Multi level user access	✓	✓	✓
Control and monitoring of available HVAC systems	✓	✓	✓
Trend datalogging live history (months)	1	3	6
Trend datalogging SQL-backup (months)	6	12	24
Network status of HVAC systems	-	✓	✓
System graphics	-	✓	✓
Custom animated system graphics	-	-	✓
Custom colour settings	-	-	✓
Detailed ship deck pages showing location of rooms, fans, dampers and FC units	-	-	✓

AIR HANDLING UNIT	Pro	Px	HPx
Fixed supply temperature setpoint	✓	✓	✓
ECO mode	✓	✓	✓
Available fan controls	✓	✓	✓
AHU graphic	-	✓	✓
AHU settings	-	✓	✓
Night mode	-	✓	✓
Automatic smart supply temperature setpoint	-	✓	✓
Dehumidification supply temperature setpoint offset	-	✓	✓
Sensor offsets	-	✓	✓
Damper group control on AHU page	-	✓	✓
Room control overview on popup page	-	✓	✓
Custom 3D animated AHU graphic	-	-	✓
Scheduled night mode	-	-	✓
Animated sensor alarms	-	-	✓

ROOM AND FANCOIL UNITS	Pro	Px	HPx
Single room control with temperature, heating and cooling output	✓	✓	✓
Room temperature trend	✓	✓	✓
Manual control mode of cooling/heating	-	✓	✓
Overview of all rooms per AHU	-	✓	✓
Room door switch mode and indication	-	✓	✓
Fancoil units temperature alarms	-	✓	✓
Custom 3D animated room graphic	-	-	✓
Jump to deck location from popup page	-	-	✓
Time controlled room setpoints	-	-	✓
Define room groups for zone control	-	-	✓
Room status overview	-	-	✓

CHILLER	Pro	Px	HPx
Chiller monitoring	✓	✓	✓
Chiller graphic	-	✓	✓
Power reduction controls by pms	-	-	✓
Custom 3D animated chiller graphic	-	-	✓

PROVISION COOLING	Pro	Px	HPx
Evaporator room controls	✓	✓	✓
Single cell status	✓	✓	✓
Overview of all cells	-	✓	✓
General image	-	✓	✓
Basic compressor control	-	✓	✓
Cell overview status and temperatures	-	✓	✓
Cell settings, defrost schedule	-	✓	✓
Adjustable high/low temperature alarms	-	✓	✓
Custom 3D animated graphic	-	-	✓

DAMPERS	Pro	Px	HPx
Individual monitoring of dampers	✓	✓	✓
Overview pages with individual damper control	-	✓	✓
Individual control of dampers	-	✓	✓
Custom tag numbers and serving information	-	✓	✓
Dampers placed on ships deck pages showing status and location	-	-	✓

ENGINE ROOM VENTILATION	Pro	Px	HPx
Control of engine room fans	✓	✓	✓
Manual speed control of fans	-	✓	✓
Use of custom deck layout graphic	-	✓	✓
Animated fan graphics	-	-	✓

The Pro-version

ALL NECESSARY OPTIONS AVAILABLE

The Pro-version is a standardized application that comes with those pages that match the available systems, and gives you access to its main functions. Switch easily between the available systems via the clear menu. All assets are displayed in a well-arranged overview.

SYSTEM OVERVIEW

Unit status
Quick readout of units status

Chiller temperature
Temperature readout of supply and return water

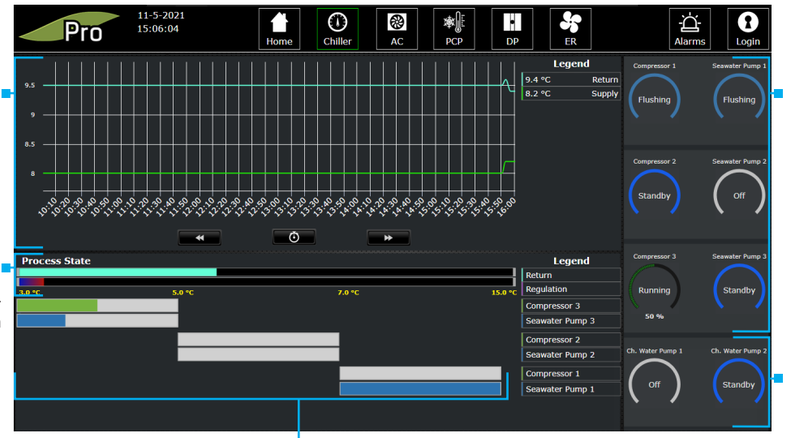
Chiller capacity
Current compressor and seawater pump capacity at a glance

AC temperature
Temperature readout of supply and return air

Cool/heat capacity
Current cooler and heater capacity at a glance

Engine room ventilation
Fan status and speeds

CHILLER UNIT



Trend temperature
A quick overview shows present and past water temperature readouts

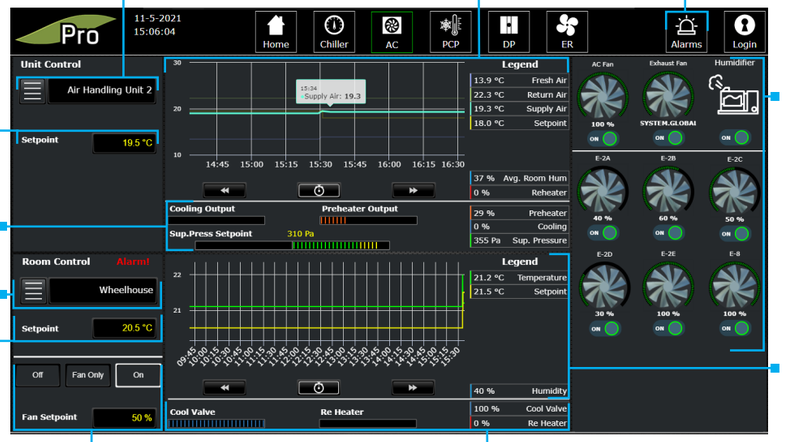
Process state
Indicates the actual control water temperature and the regulation output

Compressors
Actual capacity for compressor/pump

Chilled water pumps
Actual capacity for chilled water pumps

Chiller stages
Quick overview of compressor and cooling pump stage outputs

AC SYSTEM



Unit selection
Switch between AC units

Trend AC temperatures
Quick overview shows present and past temperature readouts for multiple air sensors

Alarms
Access current alarms

AC unit setpoint
Adjust temperature setpoint

Air handler values
Readout on cooling, heating and pressure

Fan overview
List of all the fans connected to this AC system including current capacity

Cabin section
Switch between cabins

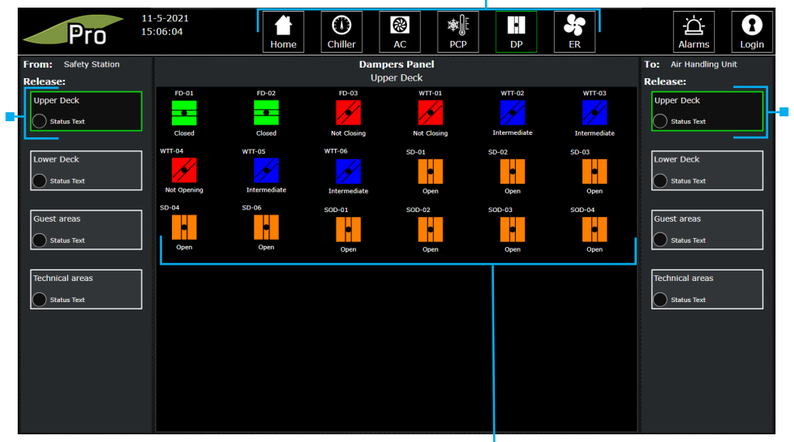
Trend cabin temp.
Quick overview that shows present and past temperature readouts

Setpoint cabin
Adjust temperature setpoint

Setpoint Fan
Adjust fan capacity setpoint

Status cabin components
Readout on cooling and heating capacity for a specific cabin

DAMPER OVERVIEW



Main menu
Navigation menu for different HVAC assets

Release inputs
Shows which release inputs from safety systems are active for each zone

Release outputs
Shows which release ouputs to the AC systems are active for each zone

Damper panel
Status overview of all dampers

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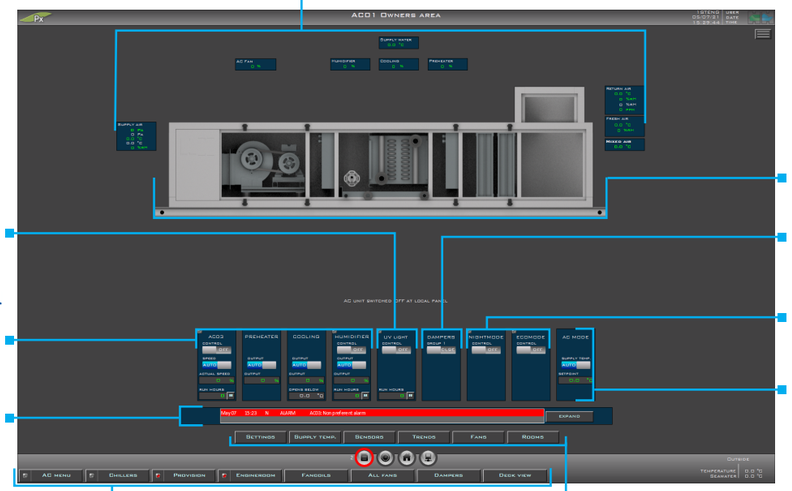
The Px-version

CONVENIENCE & COMMAND

The Px-version is visually advanced with an eye for detail and has more sophisticated options available. Everything that is connected to an AC system is just a mouse click away. From room temperatures to dampers and connected fans.

AC SYSTEM



Units parameters
Readout of current parameter status like temperature, capacity, pressure, etc.

UV Light
Access to UV light control and actual status readouts

AC component control
Access to all compo-nent controls and actual status readouts

Alarms
See which alarms are active

2D graphics
2D model of AC unit

Dampers
Manage all dampers connected to AC unit

Night/eco mode
Switch modes on/off

AC mode
Switch AC mode and control setpoint

Main menu
Navigate through menu

AC unit menu
Navigate further AC options

CHILLER SYSTEM

Status report
Detailed readout on all compressor values and running hours

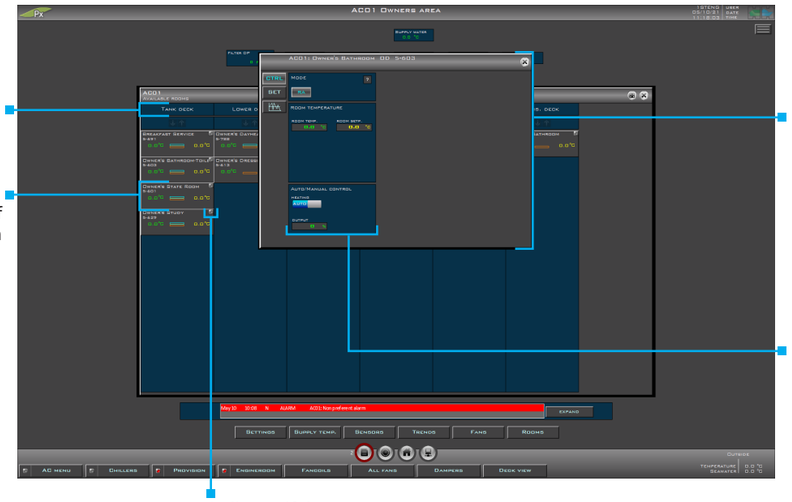
Power control
Control power management function

2D graphics
2D model of chiller unit

Pump status
Status readouts on chilled water pumps

Chiller menu
Navigate through chiller options

ROOMS OVERVIEW



Deck
Rooms sorted by deck

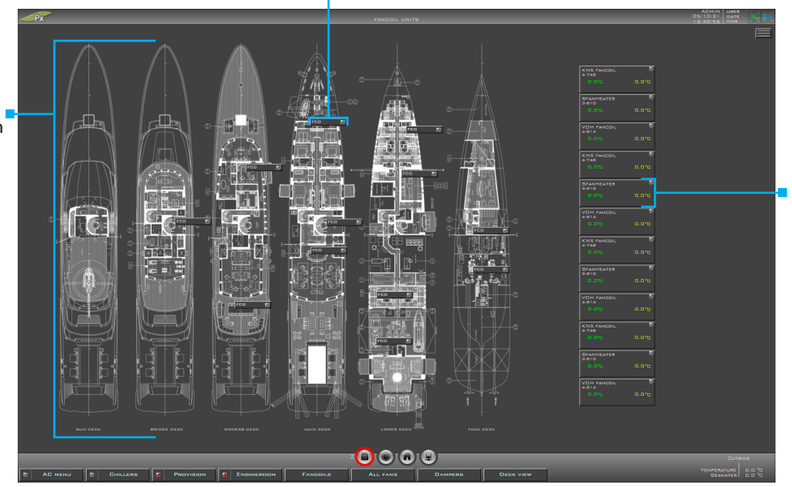
Rooms
Quick status display of room with information of heating, cooling, capacity and setpoint temperature. Can be clicked for more details

Room pop-up
More detailed display of specific room with access to multiple functions such as trends, setpoint, heating control and much more

Indicates if the room has an alarm active

Indicates if the room has an alarm active

DECK OVERVIEW



Position fancoil

Deck overview
All fan coil positions in one overview

Fancoil unit
Quick status display of fancoils. Can be clicked for more details.

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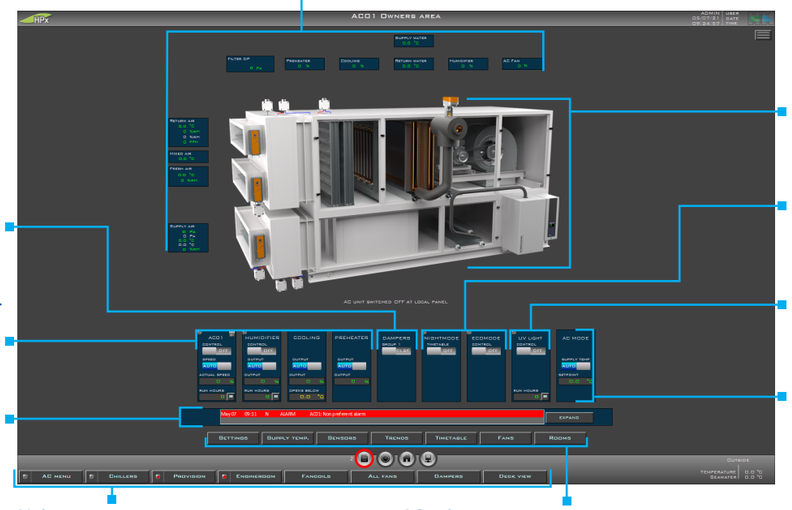
The HPx-version

EXPERIENCE THE FULL POTENTIAL OF SCADA

The HPx-version is the ultimate edition on all levels. From stunning 3D graphics with animated components such as turning fans and glowing heaters to the most advanced options available. Designed with eye for detail and usability in mind.

AC SYSTEM



Units parameters
Readout of current parameter status like temperature, capacity, pressure, etc.

3D graphics
3D model of AC unit with animated components

Night/Eco mode
Switch modes on/off or set according to preset time schedule

UV light
Access to UV light control and actual status readouts

AC mode
Switch AC mode and control setpoint

Dampers
Manage all dampers connected to AC unit

AC component control
Access to all component controls and actual status readouts

Alarms
Alarm readout screen

Main menu
Navigate through menu

AC unit menu
Navigate further AC options

CHILLER SYSTEM

3D graphics
3D chiller model with animated components. Alarms are highlighted on specific location in model.

Power control
Control power management function

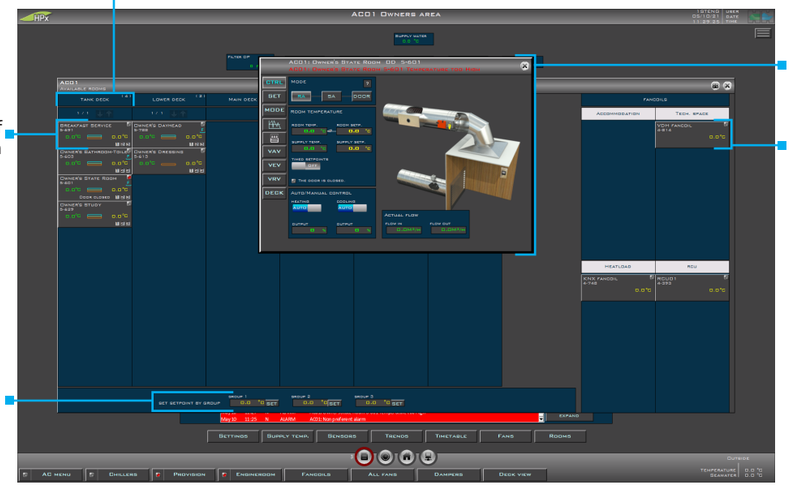
Status report
Detailed readout on all chiller stages parameters.
Menu can be enlarged when clicked.

Pump status
Parameter readouts on chilled water pumps

Alarms
View all specific alarms for the chiller unit

Trends
Access to historical temperature and pressure trends

ROOMS OVERVIEW



Deck
Rooms sorted by deck

Room pop-up
More detailed display of specific room with access to multiple functions such as trends, setpoint, heating control and much more

Fancoils
Quick status display of fan coil with information.
Can be clicked for more details.

Rooms
Quick status display of room with information of heating, cooling, capacity and setpoint temperature. Can be clicked for more details

Group setpoint
Allocate rooms to serperate groups for zone temperature settings

DETAILED DECK VIEW

Position of fans

Room highlight
Mouse over highlights the selected room

Position of damper

Deck details
Dedicated pages for each deck section

Deck overview
For quick reference on the deck page location

Rooms
Quick status display of room with information of heating, cooling, capacity and setpoint temperature.
Can be clicked for more details

Main menu
Toggle display of rooms, fans and dampers for personal preference

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Gooiland Elektro

A HEINEN & HOPMAN COMPANY

SOLUTIONS FOR:

YACHTS

NAVY

RENEWABLE ENERGY

OFFSHORE

CRUISE SHIPS & FERRIES

SPECIAL VESSELS

With over 30 years of experience in marine automation, GOOILAND ELEKTRO has developed a strong expertise in client-specific HVAC control solutions for all kinds of vessels. Taking into account maritime-specific conditions, such as ambient conditions, ship construction and applicable regulations and classifications, GOOILAND ELEKTRO realizes the most advanced technology. The Pro, Px and HPx product range has been developed in order to meet the needs of different types of clients, ranging from series built vessels to 100% custom-built superyachts. Whereas the Pro solution provides high performance at competitive pricing, the HPx offers unlimited possibilities; you name it, we build it.

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process automation

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