

# AKODUO

Total modularity and reliability for the efficient management of compressor racks and condenser fans

# AKO

we make it easy



DUOControl



DUOControl

# We make it **easy**

At AKO we strive every day to provide our customers with complete integrated solutions for the control and monitoring of industrial and commercial refrigeration systems.

- **Optimising the system's energy consumption**, reducing electricity expense and maximising the return on the installation of integrated industrial refrigeration
- **Managing the cold chain reliably and safely**, to ensure food retains all its nutritional properties.
- **Integrating our solutions and products into the system**, to provide maximum usability with an innovative design.
- **Guaranteeing the health and safety** of consumers and employees of industrial and commercial refrigeration systems.
- **Respecting the environment** with less energy-intensive solutions meeting all legal requirements.



# earnings **joint business**

AKO solutions optimise both energy savings and the overall installation cost.



# assessment **advice**

With customer needs becoming more and more critical, AKO's experience allows us to research and develop reliable high added-value solutions.



# support **tools**

Because the customer demands more and more, our team of professionals provides complete support: from joint project design to commissioning.



# you **passion for the customer**

The passion we feel for our customers drives AKO to keep innovating and developing solutions for integrated control and monitoring of industrial and commercial refrigeration.



Integrated system. Open protocol (modBus)

Easy management

Energy e

Control Room

## AKODUO

The efficient and reliable management of compressors and condensators is crucial in refrigeration plant to guarantee the cold chain and maximise energy savings.

The AKODUO system is a reliable, modular solution to these requirements:

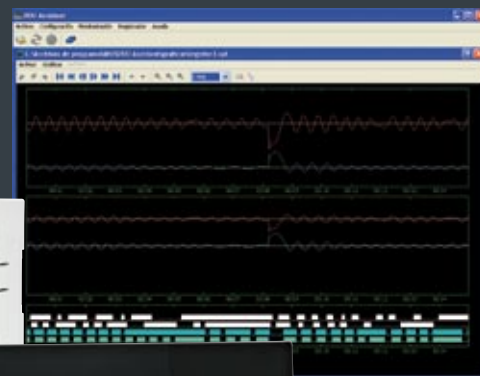
**DUOControl** manages the compressor room efficiently using the floating condensation function. Its innovative design allows maximum scalability for the system to grow while optimising installation cost.

**DUOVision** provides the user with total accessibility and reliable management of the AKODUO system. Its two graphic displays provide quick and accurate system status information. Parameters are grouped according to their function in a graphical and intuitive way.

**DUOAssistant** is a PC-based program which provides the designer with a powerful tool for facilitating the parameterisation process and system set-up, saving time in commissioning and fine tuning the installation. It allows DUOControl to be parameterised from an ordinary file and all system variables to be recorded for later analysis by DUOAssistant.



DUOControl



DUOAssistant



DUOVision

# AKOSYS

Integrated system for the con

Efficiency

Guaranteeing the cold chain

Innovative Design

Guaranteeing

Cold Production Room

Food Conservation Room

## AKODUO

The new generation of controllers for compressor racks and condenser fans

## DUOControl

Modularity, reliability and energy management

### For the world of refrigeration:

- Models available with 6/12/18 outputs
- Up to 6 compressors (with up to 4 stages each)
- Up to 8 fans, (unlimited if an inverter is fitted)
- Regulation selectable between proportional band and neutral zone
- Rotation of operational times or sequential activation
- Floating condensation algorithm
- 4-20 mA inputs for pressure and ambient temperature transmitters
- 4-20 mA output with Proportional-Integrative control for an inverter
- Integrated RS-485 communications. Modbus protocol
- Options for working with any gas in bar, and in bar and °C with R404A, R134A, R717A, R22A, R410A, R507A, R744A

### For the owner:

- Totally reliable control of the cold production process
- Developed on a PLC platform
- Scalability: easily expandable if the installation is extended
- Flexibility: open system allowing new models and future upgrades with possible new market requirements

### For the installer:

- Transistor outputs, number of operations beyond the system's lifetime
- Easy diagnosis:
  - CPU: diagnostic LEDs
  - Digital and analogue I/Os: direct status display on the unit itself
- Quick replacement: all connectors are pluggable
- Modularity: breakdowns are as easy to fix as replacing the module
- Spares: only three different part numbers are needed to cover any current or future model



DUOControl

Guaranteeing personnel safety

Conserving food properties

Respecting the environment

Sales Hall

## DUOVision Ease of use and accessibility

- Values displayed in °C or bar
- Total accessibility and ease of use for both the installer and the user
  - 2 multi-colour graphic displays
  - Extremely intuitive navigation keys
- Maximum information with rapid display of:
  - Evaporation and condensation values and ambient temperature
  - Evaporation and condensation Set Point
  - Date and time
  - Type of gas
  - Status of all compressors and fans
- Allows parameterisation, monitoring and checking of system wiring
- Menus grouped by function
- Contextual help for all parameters

## DUOAssistant The best tool for the engineer

- RS-485 communication with DUOControl
- Online log of all system parameters
- Online or offline graphic display of parameter evolution for dynamic analysis of the system
- Option of Read/Write parameterisation from or to the DUOControl, file generation and printing

At the office

- Running DUOAssistant
- With DUOAssistant: Selection of the right model, parameterisation of the installation, generation of the parameterisation file
- Parameters sent by e-mail to the panel provider

In the workshop

- Custom-built electrical panels loaded into DUOControl
- With DUOAssistant: Parameters loaded into DUOControl
- With DUOVision: Wiring check

On site

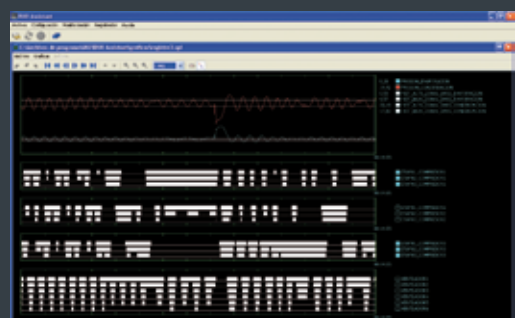
- Panel and DUOVision installation
- With DUOVision: Check of wiring between components
- With DUOAssistant: Online record of the status of all system parameters

On site or at the office

- With DUOAssistant: dynamic analysis of the installation for fine tuning or fault diagnosis



DUOVision



DUOAssistant



- A team focused on giving our customers the highest possible value
- The most highly integrated solution available:
  - Engineering
  - Broad product range
  - After-sales service
- 14% of turnover devoted to R&D&i
- ISO 9001 Quality System
- ISO 14001 Environmental Management System

## branch offices

**North-Eastern Region**  
Av. Roquetes, 30-38  
08812 St. Pere de Ribes  
Tel. 938 142 700  
Fax 938 934 054  
nordeste@ako.com

**Eastern Region**  
Tel. 696 616 955  
Fax. 938 934 054  
levante@ako.com

**North-Western Region**  
Tel. 679 984 220  
Fax. 938 934 054  
noroeste@ako.com

**Northern Region**  
Tel. 659 673 674  
Fax. 938 934 054  
norte@ako.com

**Central Region**  
C/ Fábricas, 8,  
Ed. Antares Oficina 1-11  
28925 Alcorcón (Madrid)  
Tel./Fax. 916 448 955  
centro@ako.com

**Southern Region**  
Tel. 646 525 758  
Fax. 938 934 054  
sur@ako.com

## international

**Europe**  
europe@ako.com

**Africa**  
africa@ako.com

**Asia & Middle East**  
asia@ako.com

**America**  
america@ako.com

**Australia**  
australia@ako.com

Tel. (+34) 938 142 700  
Fax. (+34) 938 934 054

**Mexico**  
Av. Lomas verdes, 750. OF. 201 • CP 53120 Naucalpan (Estado de México)  
mexico@ako.com

Present in over 62 countries

351000018 REV.00 2008

# AKO

we make it easy

AKO Electromecánica, S.A.L.

Avda. Roquetes, 30-38 • 08812 Sant Pere de Ribes [Barcelona]

Tel. [+34] 938 142 700 Fax • [+34] 938 934 054 • email: ako@ako.com

Apdo. [P.O. Box] 5 • 08800 Vilanova i la Geltrú [Spain]

[www.ako.com](http://www.ako.com)

