# OCTOPUSH
### T E C H N O L O G Y

**OCTOPUSH**
T E C H N O L O G Y

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## CANTEK®
powered by cantek

*use your energy wisely*

# OCTOPUSH
## TECHNOLOGY

CANTEK®

# OCTOPUSH
### T E C H N O L O G Y

## What is Octopush™?

The only way to develop a product is to measure more and analyse more.

Backed by more than 20 years of experience in the production of refrigeration systems, **Cantek** has established an **R&D** centre to transfer its production know-how as well as advanced technological capabilities to the cold storage industry.

**Cantek's R&D** team put their shoulder to the wheel to develop these products. They derived the name **OCTOPUSH** by inspiration from an octopus that puts all eight tentacles to work. They also wanted to make reference to electronic products that communicate by touching (PUSH) so they added an 'h' to 'octopus', making it **OCTOPUSH**.

Our assertive team embarks on new product development only if it knows it will produce the best. That's why our team continues to develop and produce unique and innovative cold storage technologies.
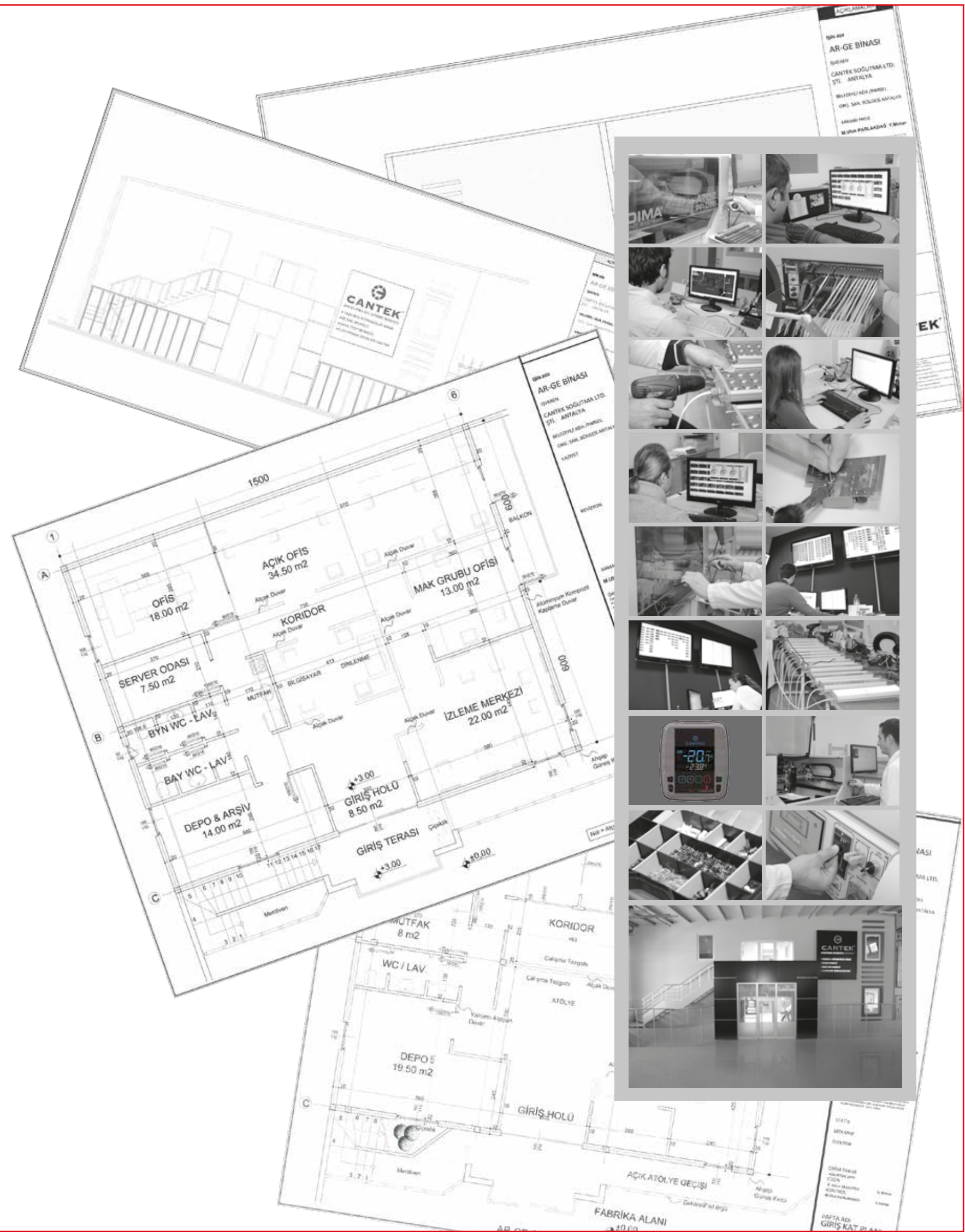
## You can't manage what you don't measure

We live in a world where natural resources are rapidly diminishing and alternative energy resources are becoming more important by the day. That's why all industries that consume electricity are investing heavily to obtain more efficient results with less energy.

**Octopush™** technologies not only offer efficient energy consumption but also significant cost savings. Clean energy means energy saved. While **Octopush™** technologies are scientifically proven to be energy efficient, they have also been awarded **TÜV** certification.

**Octopush™** technologies continuously monitor and measure cold rooms from several points and manage each cold room according to their specific needs using special algorithms developed based on **Cantek's** experience.

Our system saves up to **30%** to **70%** energy compared with other widely used monitoring units, while reducing machine breakdowns by up to **75%.**

Food products require a lot of effort and heavy investment for their production. **Octopush™** technologies allow food to be stored in cold rooms under better quality conditions and by using a lot less energy. **Octopush™** technologies add value to the industry at all levels, yielding significant gains to organisations.

**Cantek's R&D** team is behind the **Octopush™** technologies. All of the products that this team has designed to date can be managed remotely by monitoring and logging various data such as operating hours and equipment breakdowns.

The measurements and comparisons available in **Octopush™** technologies to manage energy consumption, in particular, can be monitored on a daily, weekly, and monthly basis, thus relieving customers from high electricity bills that come at the end of the month as well as enabling them to manage these bills.

In short:
**Octopush™ technologies offers the future to its users…**

# the cleanest energy is energy saved

## smart cold room management

Three different conditions apply to cold rooms:

* Sold rooms with a high heat load due to new products stored
* Cold rooms with a refrigerated load in which new hot load is added occasionally
* Cold rooms in which new products are not added but whose doors are opened occasionally.

The system's energy consumption, defrosting needs, and compressor and evaporator operating hours differ significantly according to these three conditions.

The legacy control units with standard algorithms that are widely used in the industry only defrost at certain intervals and react in a standard way to changes.

If the cold room needs to be refrigerated, these systems directly switch on the refrigeration compressor. They defrost at predetermined intervals every day. They can neither analyse the condition of the products in the cold room, nor properly use the energy that has been generated.

**Octopush™** products are designed to detect the changes in a cold room and manage them. Accordingly, if the cold room's heat load is very high **Octopush™** rapidly refrigerates it. For cold rooms in which new hot products are stored the new load is met through semi-dynamic evaporator management. Furthermore, our system provides extraordinary energy savings in cold rooms where hot products are not stored.

The new generation **Octopush™** only defrosts as needed and prevents products from losing weight and their skin from deteriorating while they remain in the cold room.

The rationale behind smart cold room management is to manage the system as a whole by monitoring all of the connections in the internal and external units, not just the doors, loads, humidity and temperature. In addition, the new generation **Octopush™** management products minimise breakdowns and transmit all data to modern communication platforms in a traceable manner, literally turning cold room management into a visual feast.

# What is Octosense™?

**Octosense™** is a refrigeration management unit for cold room users specially designed at Cantek's R&D centre using the **Octo-push™** technology. **Octosense™** has two main features:

* Firstly, **Octosense™** is managed through a smart and learning algorithm. This algorithm identifies the needs of the cold room and operates it accordingly. It does not defrost when unnecessary, it does not switch on the compressor if not needed, it fully uses the refrigeration energy generated for rapid refrigeration when needed, and refrains from consuming unnecessary energy.

All these allow the system to regain the humidity that sticks to the evaporator from the products in the cold room so as to balance its humidity. Owing to its proper use of energy it provides outstanding savings on electricity that beat all other standard products.

* Secondly, it enables users to monitor a large amount of critical and important data real-time in order to manage the cold room. In addition to standard data such as real-time temperature and humidity **Octosense™** monitors show the following data:
  * Daily electricity consumption (TL, $, Euro, kWh)
  * Daily door-open time
  * Daily compressor operation time

By monitoring this data daily, users can manage their monthly electricity bills as well as monitor how their cold rooms react to the behaviour of the refrigeration systems.

As one of the most innovative products in the world of refrigeration systems **Octosense™** delivers exciting results to investors and users alike.

## Octosense™ monitors

temperature measurement

humidity measurement

daily compressor operation time

electronic expansion control

high pressure

daily energy consumption (TL)

daily energy consumption (kWh)

pressure measurement

breakdown/alarm monitoring

daily door-open time

## Octosense™ management monitors

On/Off Indicator

Measurement Indicators

Up/Down Cursors

Functional Button

Loading Button

Real-time Temperature Indicator

Centigrade / Fahrenheit

Measurement Indicators

System Switch On / Off Button

Manual Defrost Button

Lighting Switch On / Off

Temperature Adjustment Button

### Operation Indicators

| | |
|---|---|
| ❄ | Refrigeration on |
| | Refrigeration fans on |
| | Automatic refrigeration on |
| | 1. Evaporator defrosting |
| | 2. Evaporator defrosting |
| | Door heating coil on |
| | Lighting on / off |
| | Dehumidification on |
| | Humidification on |
| ⚠ | Alarm – breakdown warning |

### Measurement Indicators

| | |
|---|---|
| | Compressor operation time |
| BAR | Pressure (Bar) |
| %RH | Cold room humidity rate |
| | Door-open time |
| EEV | Electronic expansion valve |
| € | Daily energy consumption (Euro) |
| $ | Daily energy consumption (Dollar) |
| ₺ | Daily energy consumption (TL) |
| kWh | Daily energy consumption (kWh) |
| 24 | Daily duration / time (Hour) |
| °C | Temperature (Centigrade) |
| °F | Temperature (Fahrenheit) |

### Breakdown and alarm indicators

| | |
|---|---|
| PR1 | Room probe breakdown |
| PR2 | Evaporator 1 probe breakdown |
| PR3 | Evaporator 2 probe breakdown |
| PR4 | Condenser probe breakdown |
| PRH | Humidity probe breakdown |
| HRT | High temperature alarm |
| LRT | Low temperature alarm |
| HPR | High pressure alarm |
| LPR | Low pressure alarm |
| THR | Thermal relay alarm |
| CON | Condenser temperature alarm |
| DOR | Door-open alarm |

# OCTOSENSE

Cold Storage Management Unit
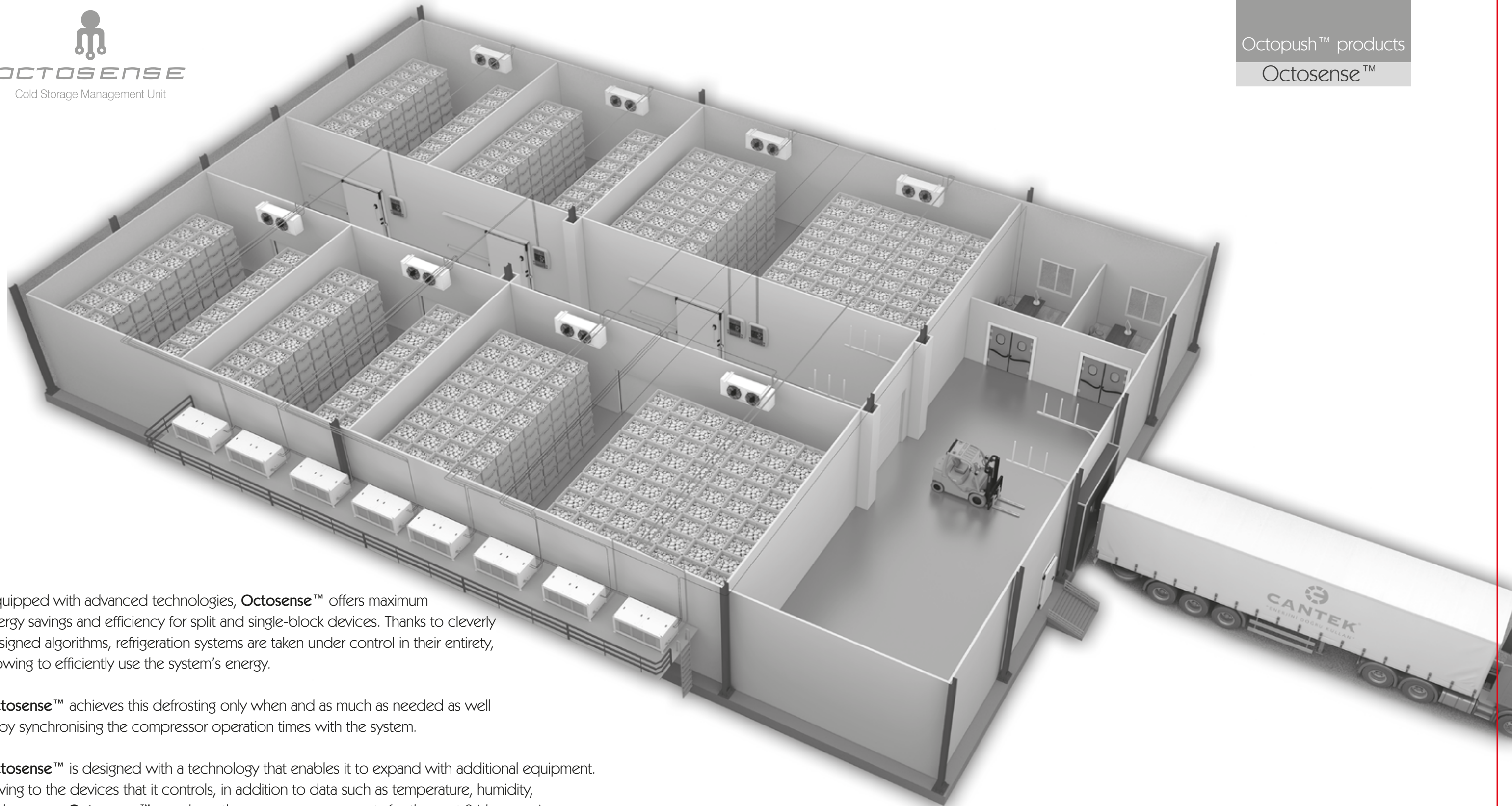
Equipped with advanced technologies, **Octosense™** offers maximum energy savings and efficiency for split and single-block devices. Thanks to cleverly designed algorithms, refrigeration systems are taken under control in their entirety, allowing to efficiently use the system's energy.

**Octosense™** achieves this defrosting only when and as much as needed as well as by synchronising the compressor operation times with the system.

**Octosense™** is designed with a technology that enables it to expand with additional equipment. Owing to the devices that it controls, in addition to data such as temperature, humidity, and pressure **Octosense™** can show the energy measurements for the past 24 hours using an integrated energy analyser and report the cost of the energy consumed on a TL or Euro basis.
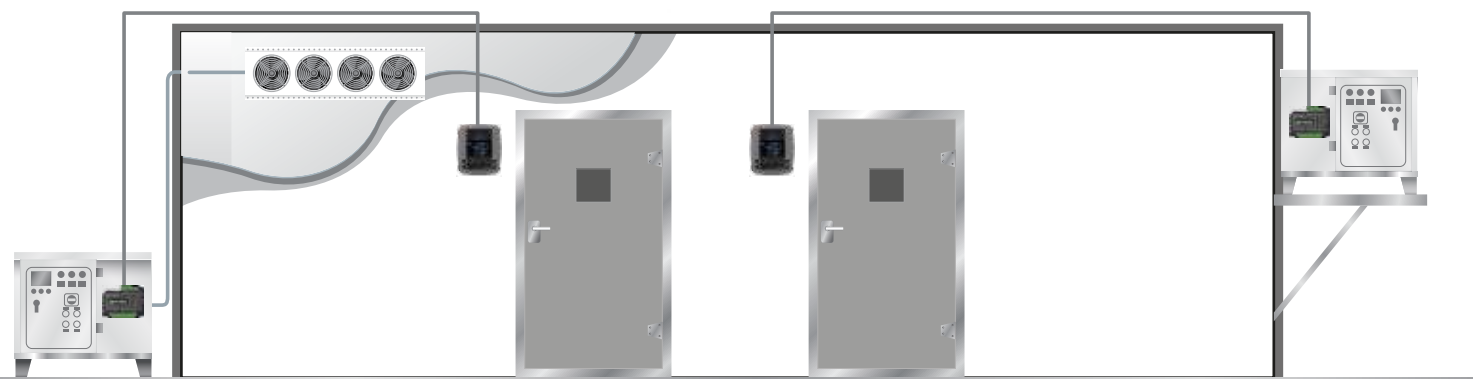
Octosense™ applications for split and single-block devices

# OCTOSENSE

Cold Storage Management Unit
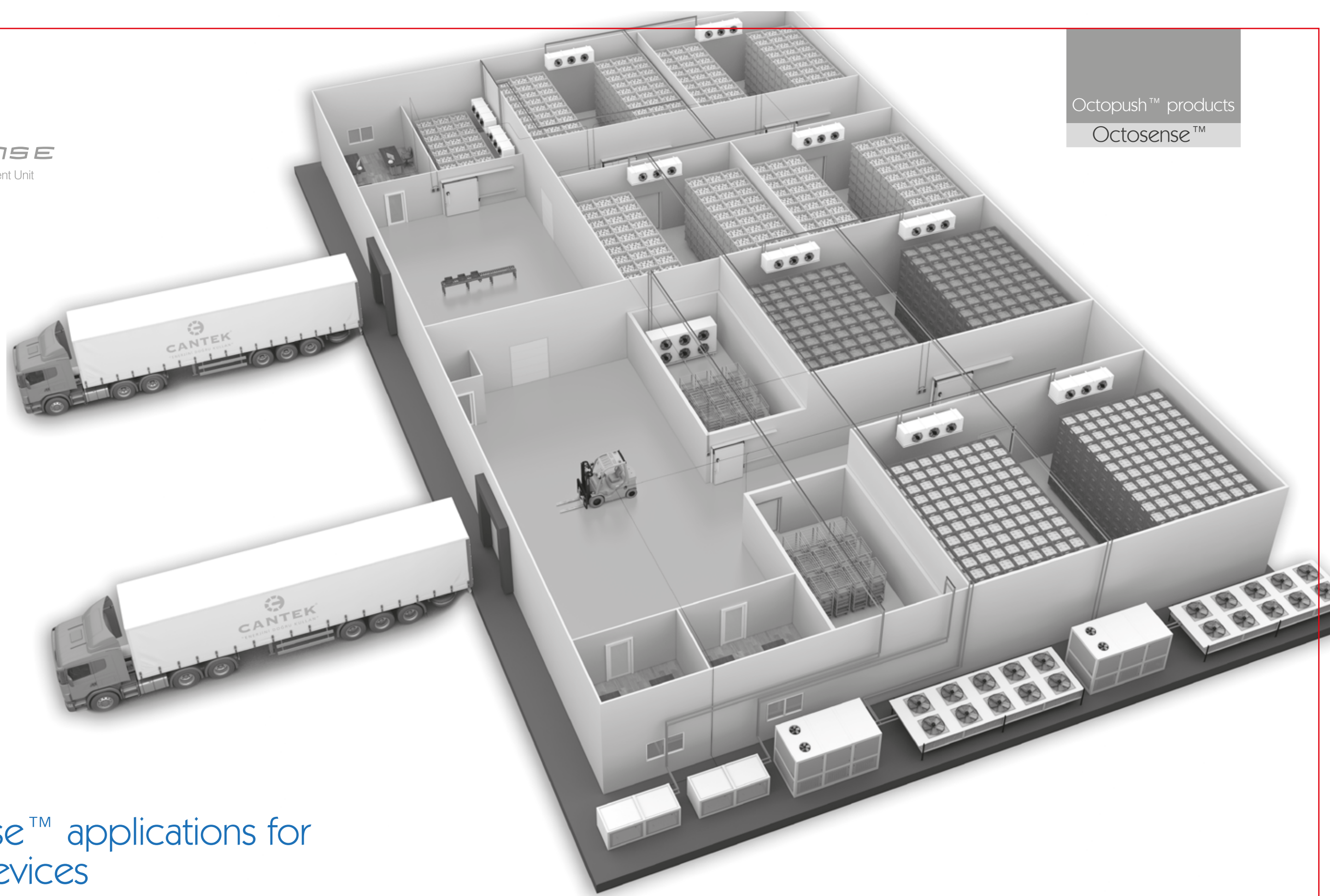


# Octosense™ applications for central devices

Octosense™ is a management unit that can be integrated into central systems and which works synchronously with such central systems. Thanks to its smart algorithms it organises the energy to be used from the system in the most accurate way. Octosense™ defrosts only when and to the extent needed, refraining from using up unnecessary energy from the system. This way, it both saves energy and uses energy efficiently. Octosense™ can be customised as Octofreeze™ or Octochiller™, all of which are compatible with central system applications.

OCTOFREEZE
Freezing Management Unit

# What is Octofreeze™?

**Octofreeze™** is a smart quick-freeze unit designed for quick-freeze rooms.

This control board enables users to monitor not only the product's internal temperature and ambient temperature but also the energy consumed during the quick-freeze process. It also enables users to log the quick-freeze time so as to help manage the quick-freeze process.



-30,7 °C

quick-freeze cabin

-23,8°C
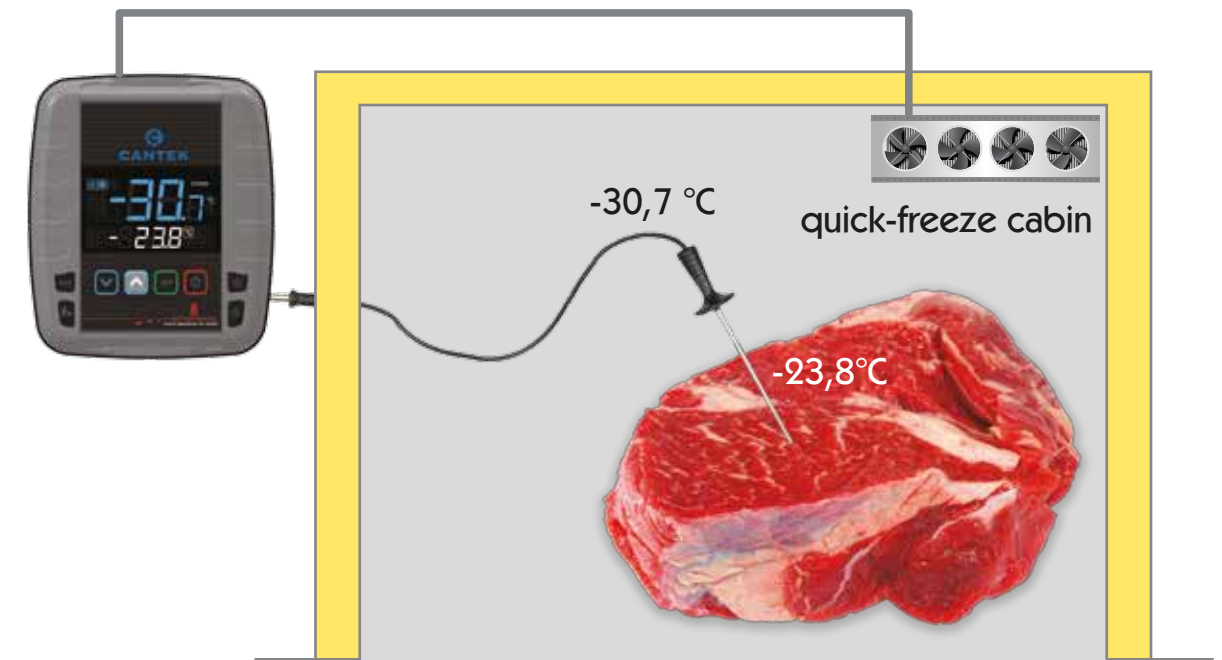


product internal temperature + ambient temperature



quick-freeze energy consumption



quick-freeze cost



quick-freeze time

octofreeze ambient temperature / product internal temperature - timeline

-23,8°C
-25°C PRODUCT TEMPERATURE
-32°C AMBIENT TEMPERATURE
-30,8°C
TIME

300 kWh ENERGY CONSUMPTION
100 Kwh        200 Kwh        278 Kwh

75 TL / 12h ENERGY CONSUMPTION
25 TL        50 TL        72.5 TL

electricity consumption scale
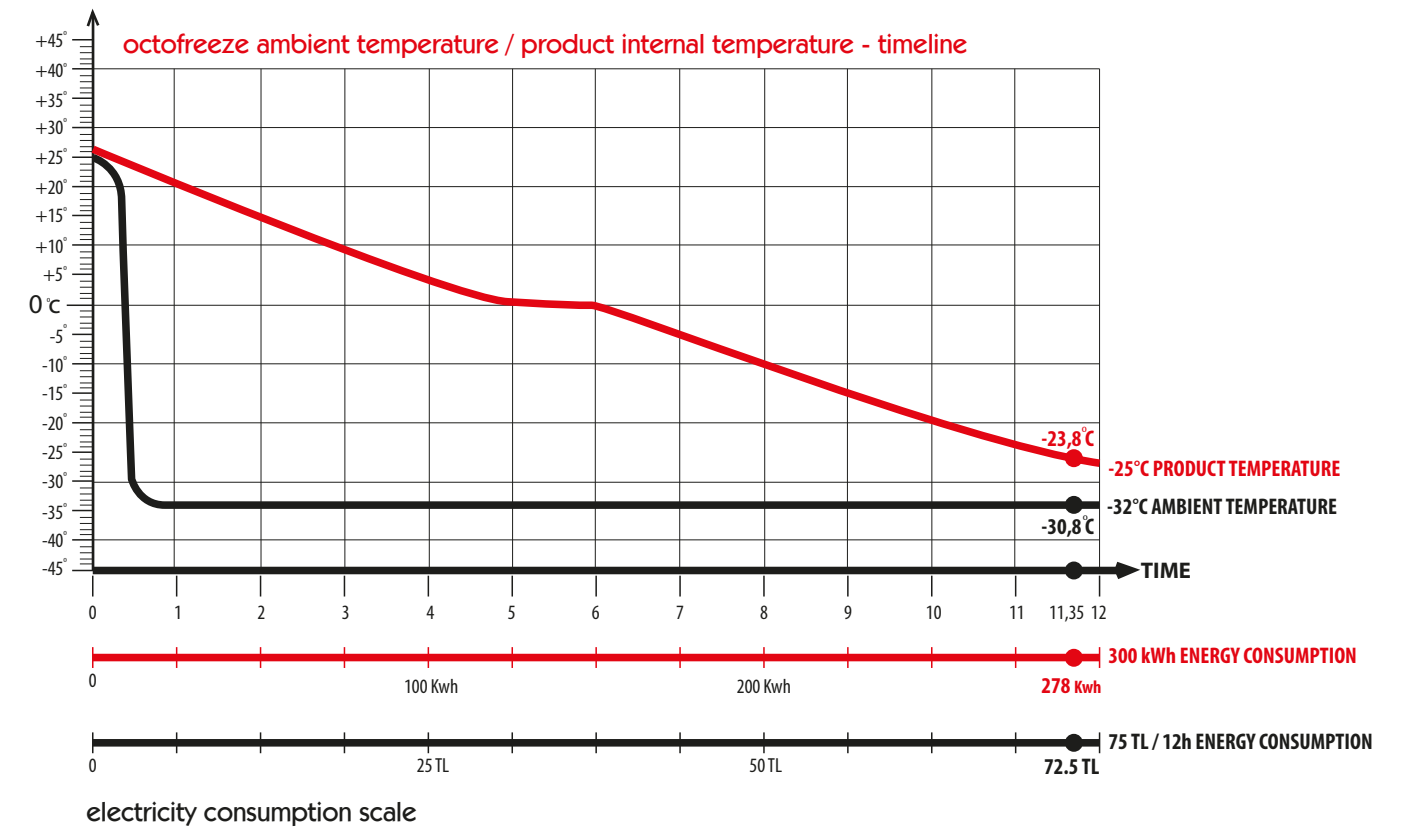
# Central refrigeration systems and methods

In refrigeration systems where freon is the coolant, feeding the refrigeration system from a central system with multiple compressors is the method of choice both in terms of energy efficiency and ease of maintenance and repairs in the event of breakdowns.
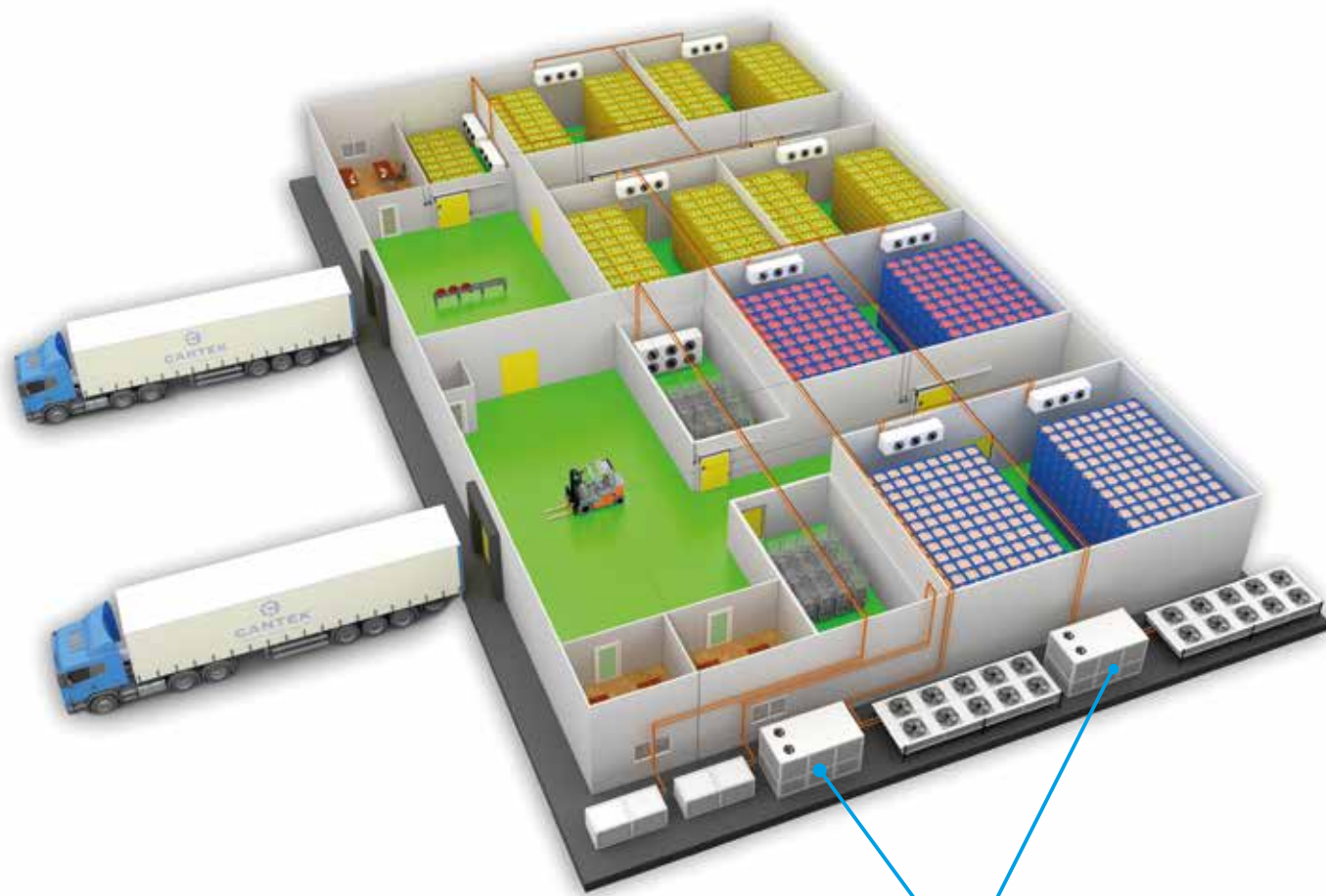


In the past decade, among industrial refrigeration systems, the capacity of screw-type and reciprocating compressors that use freon gas has increased. Similarly, the start-up systems of these compressors have developed. Now, they offer a healthy alternative to the ammonia-based refrigeration systems that have been used in large-scaled refrigeration systems.
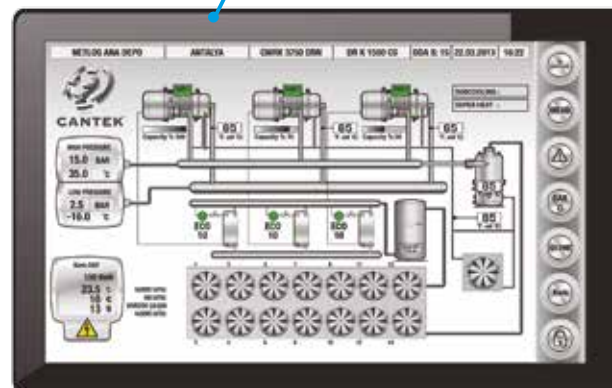
## OCTORACK
Multi Compressor Management Unit

# What is Octorack™?

Octorack™ is a central system management unit, the hardware and software of which is designed at Cantek's R&D centre by the Octopush™ team. Octorack™ stands out with three main features:

* Firstly, you can watch the real-time animation of the refrigeration system. You can adjust the parameters using the touch screen, observe the pressure changes on a graph, and visually monitor the system's maintenance and breakdown history.

You can monitor the central system's energy consumption from Octorack™'s screen.

* Secondly, you can monitor the architectural layout of the cold rooms linked to the central system and the temperature of the management units controlling the cold room on a real-time basis.

* Thirdly, several features that come as extras in central systems are available as standard features in Octorack™. The standard features available with Octorack™ include a 12.1 inch touch screen, communication and management capability using RS 485, co-ageing for the compressors and condenser fans, oil temperature control at the time of first operation, measurement of the condenser's external ambient temperature using the floating condensation principle, and logging capacity of last 250 breakdowns.

Bid farewell to all problems related to parameter adjustments and working order for central systems. Octorack™ turns all these into a visual feast.



CANTEK
Language Selection
Maintenance

MENU

ALARM
Alarm History

TEMPERATURE GRAPHS,
PRESSURE GRAPHS
Combined graph for suction
and force pressures

MONITORING

ENERGY CONSUMPTION
GRAPHS

PASSWORD
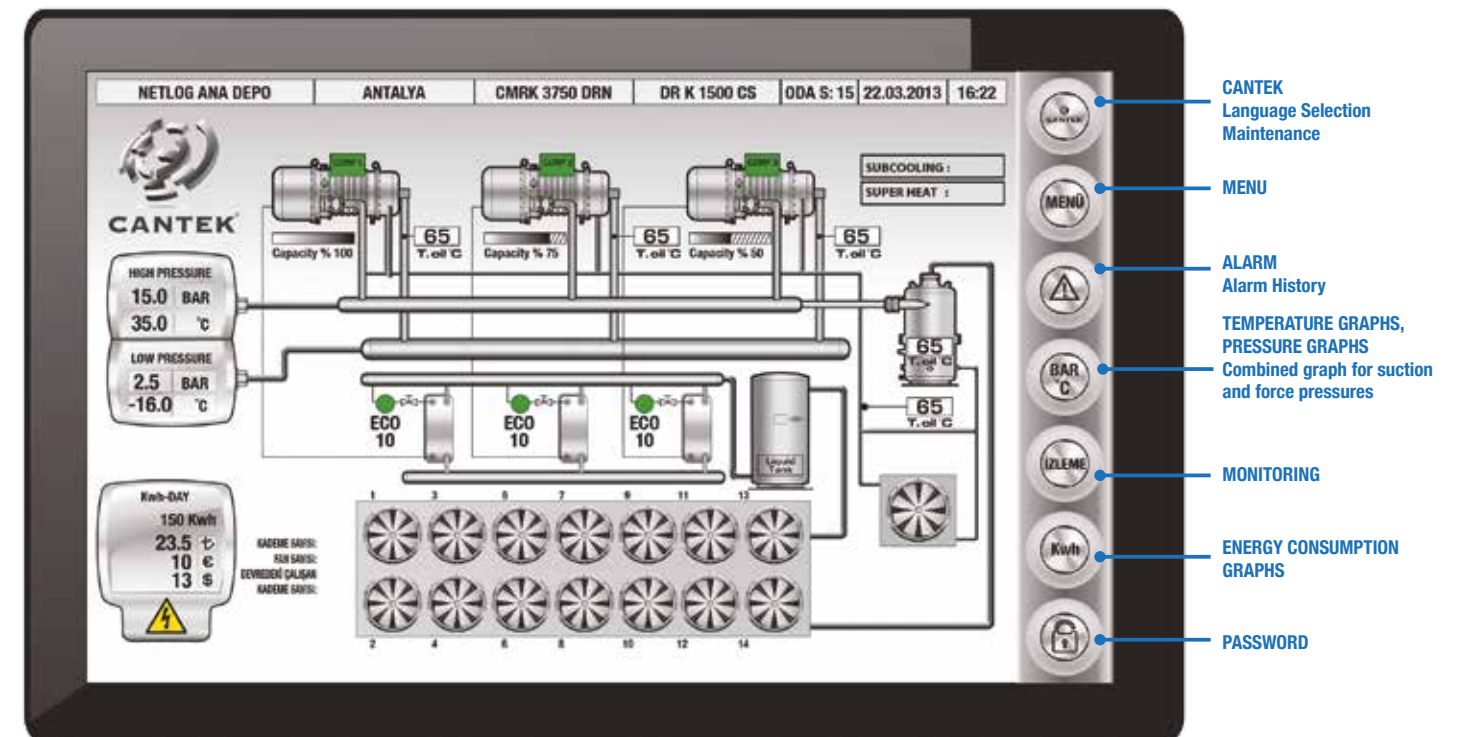
# What is Octogate lan™?

**Octogate lan™** is a system that collects data from the cold room management unit using a Modbus RTU communication protocol and submits such data to a remote server via a modem that is linked to the local network with an Ethernet cable.

As a result, users can monitor and manage the cold rooms using a remote monitoring software.

| Series | Octogate |
|---|---|
| Dimension | 70(W) x 105(D) x 25(H)mm |
| Power | 5 V DC |
| I/O Internet | 1xRJ45 (10BASE-T) |
| I/O Power | 1x DC Power Input (5.5mm x 2.5mm Power jack) |
| I/O Comm. | 1x RS485 (Galvanic isolation, TVS Protection, Up to 32 clients) |
| Display | 1x Display (2x16 LCD Character Display) |
| Button | 4x Button (Escape, Down, Up, Set Configurations Buttons) |
| Package | 1x Octogate LAN<br>1x 5V DC Adapter<br>1x Ethernet Cable (1m) |
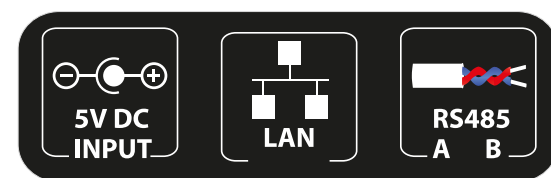
# What is Octogate M2M™?

**Octogate M2M™** is a system that collects data from the cold room management unit using a Modbus RTU communication protocol and submits such data to a remote server via GPRS. Where there is no Internet connection, **Octogate MSM™** offers an alternative solution for the remote monitoring system by connecting to the Internet from the GSM network.

| Series | Octogate |
|---|---|
| Dimension | 70(W) x 105(D) x 25(H)mm |
| Power | 5 V DC |
| I/O SIM | 1x SIM Connector |
| I/O Power | 1x DC Power Input (5.5mm x 2.5mm Power jack) |
| I/O Comm. | 1x RS485 (Galvanic isolation, TVS Protection, Up to 32 clients |
| GSM Specs. | EGSM 900/1800 Mhz (Optional QUAD Band) |
| Antenna | 1 x Antenna (SMA Connector) |
| Status Leds | 2 x Leds (Power Led, GSM Status Led) |
| Package | 1x Octogate M2M<br>1x 5V DC Adapter |
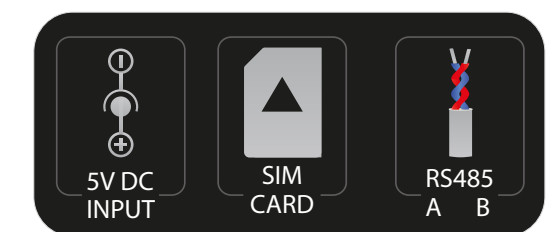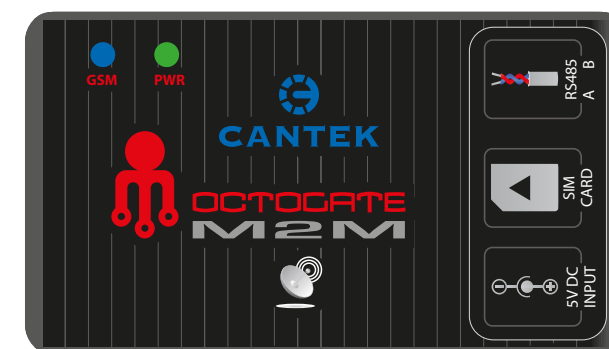
# OCTOSERVER

Local Monitoring and Management Server

## What is Octoserver™?

**Octoserver™** is a mini server system that offers the hardware and software in one for organisations that want to monitor and manage the cold rooms themselves. **Octoserver™** can perform the **Octocenter™** services and tasks as a stand-alone system.

Owing to its Internet connection you can track all of the monitoring data from the **Octoserver™** in order to independently manage your cold rooms.

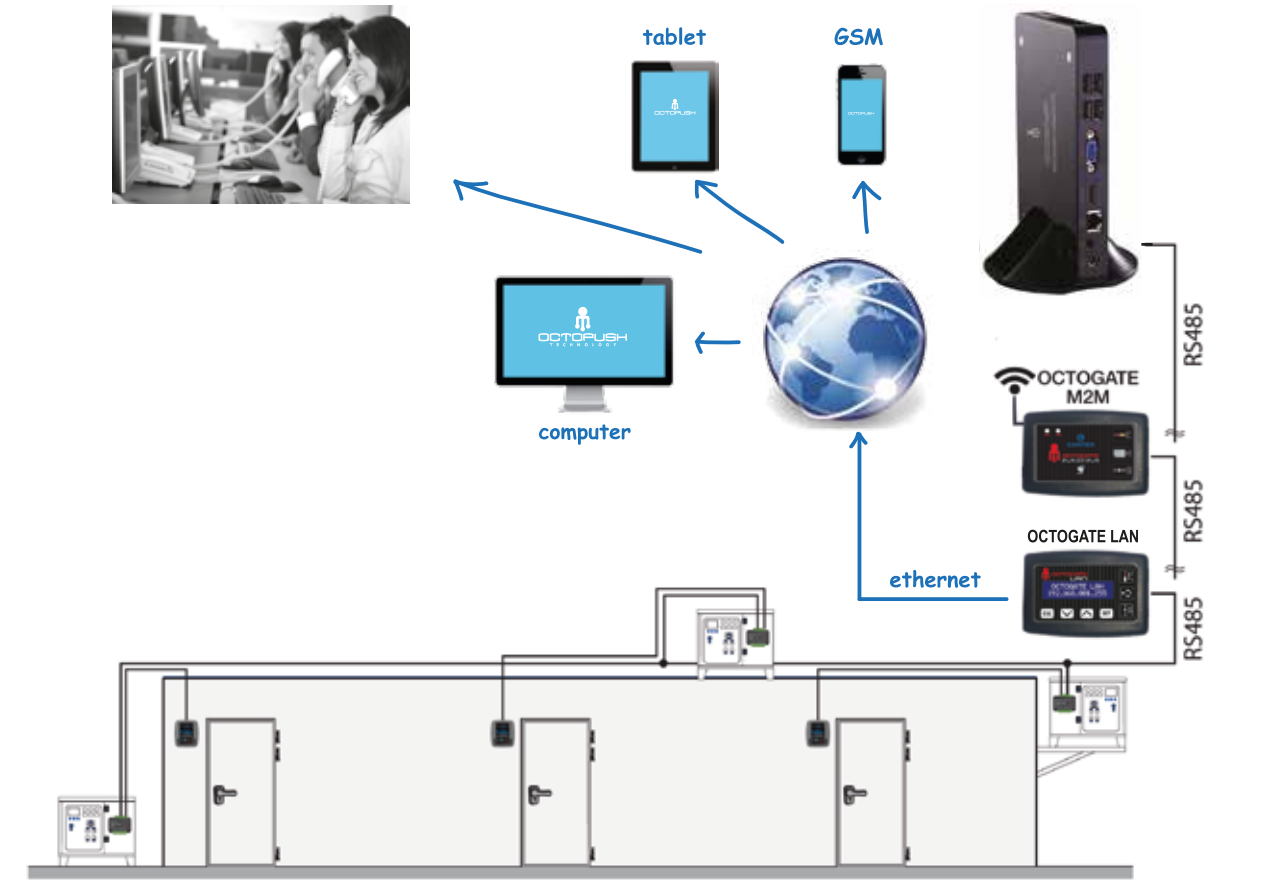| Series | Atom |
|---|---|
| Dimension | 190(W) x 135(D) x 24(H)mm |
| Processors Supported | Intel Cedar View 2.13GHz Dual core |
| Chipset | Intel NM10 |
| Memory Supported | 1x SO-DIMM Socket Support DDR3 1066 up to 4GB |
| VGA Graphics | Intel GMA |
| Storage Interface | 1x 2.5" SATA II 3Gb/s |
| LAN | IEEE 802.11b/g/n up to 300Mbps |
| Front I/O | 1x SD/SDHC/MS/MS Pro/MMC 5 in 1 Card Reader<br>2x USB 3.0<br>1x Mic in (support S/PDIF-IN)<br>1x Headphone |
| Back I/O | 1x RJ-45 (10Base-T/100Base-T/1000Base-T)<br>4x USB 2.0<br>1x Line-out jack.(support S/PDIF-OUT)<br>1x HDMI<br>1x VGA<br>1x DC in |
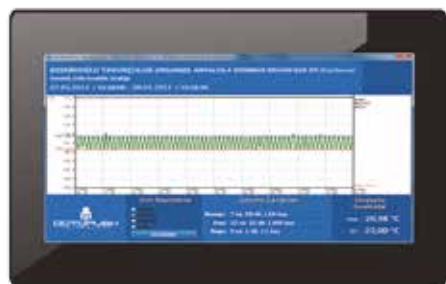
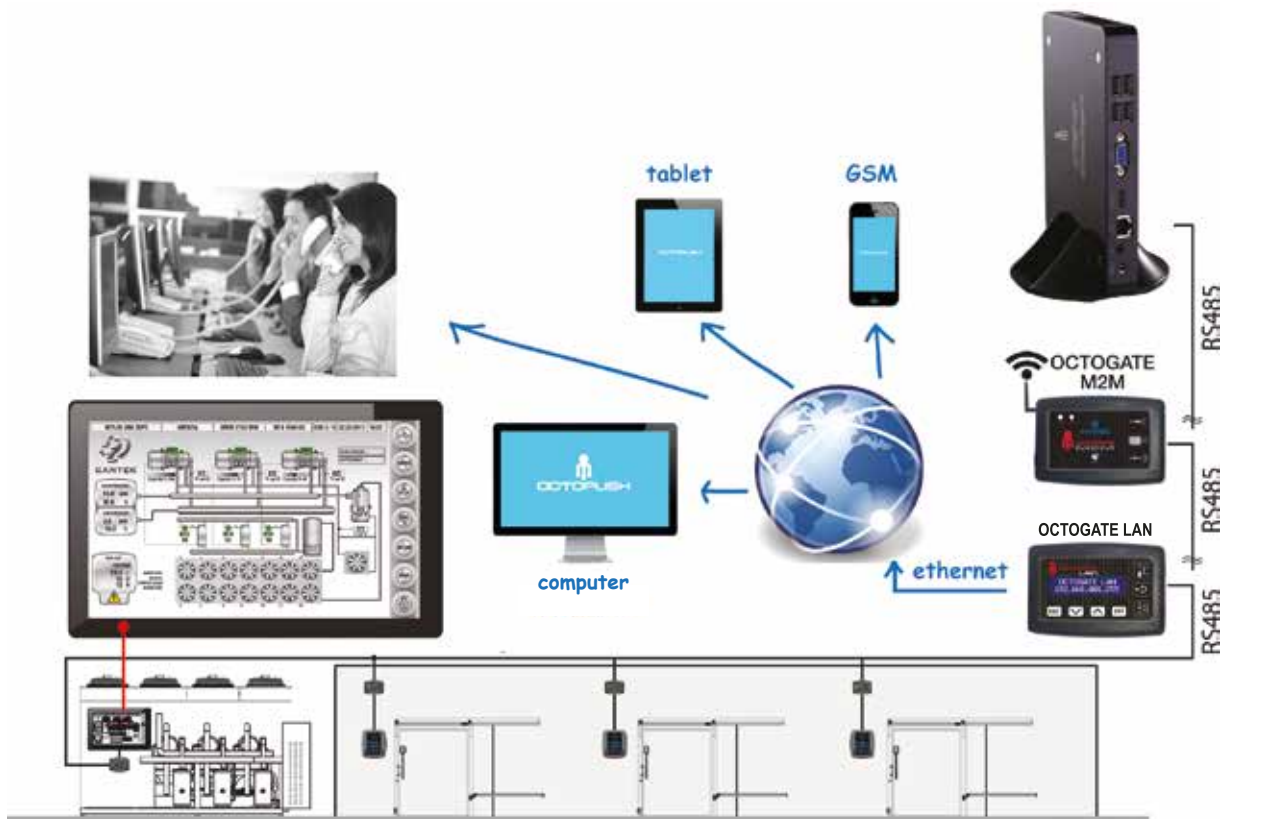daily ambient temperature graph
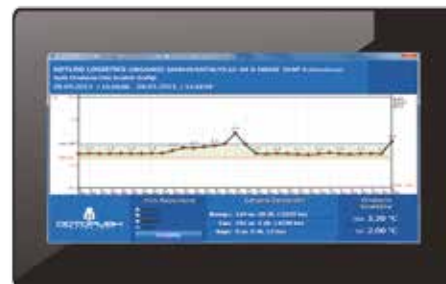
weekly ambient temperature graph

monthly ambient temperature graph

tablet  GSM

computer

**server connection for remote monitoring in split and single-block devices**

tablet  GSM

computer

**server connection for remote monitoring in central systems**

# What is the Octopush 8™ series?

These products are designed as an economical solution to standard management units available in the market for cold room and humidity control.

These products have a wide application area and come with an internal transformer, up to 3 relay outputs, up to 3 NTC probe inputs, and infrastructure to communicate with the monitoring centre.
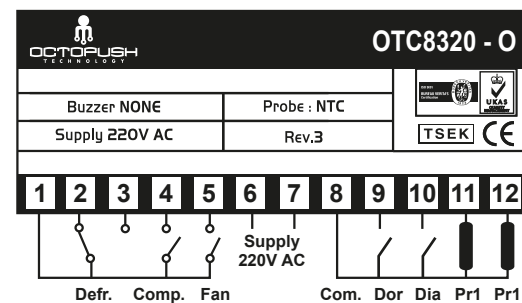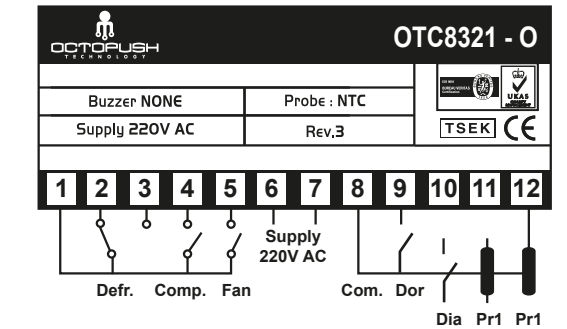
## OTC8320

This product is a remotely managed refrigeration control unit with 2 temperature probes, 3 relays, and 2 digital inputs for low and moderate temperature applications.

Management unit with two probes
and three relays (for refrigeration)

| 1-2 | Normal closed defrost relay output |
|-----|-----|
| 1-3 | Normal open defrost relay output |
| 1-4 | Compressor relay output |
| 1-5 | Fan relay output |
| 6-7 | 220 Volt supply input |
| 8-9 | Door breakdown input |
| 8-10 | Digital input |
| 8-11 | Probe 1 input (room probe) |
| 8-12 | Probe 2 input (evaporator probe) |

**OCTOPUSH** — OTC8320 - O

| Buzzer NONE | Probe : NTC |
|-----|-----|
| Supply 220V AC | Rev.3 |

TSEK CE

1 2 3 4 5 6 7 8 9 10 11 12

Defr. Comp. Fan    Supply 220V AC    Com. Dor Dia Pr1 Pr1

## OTC8321

Management unit with two probes
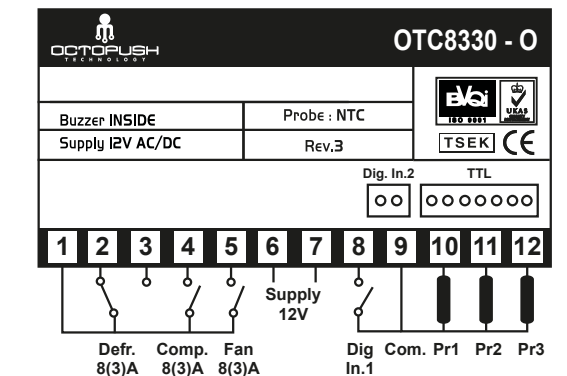and three relays (for heating and refrigeration)

This product is a remotely managed refrigeration control unit with heating and refrigeration designed for refrigeration units with positive temperature applications. It has 2 temperature probes, 3 relays, and 2 digital inputs. It controls ambient temperature by heating and refrigeration at a specific differential interval according to a pre-set value using the compressor and defrost heating coil.

| 1-2 | Normal closed defrost relay output |
|-----|-----|
| 1-3 | Normal open defrost relay output |
| 1-4 | Compressor relay output |
| 1-5 | Fan relay output |
| 6-7 | 220 Volt supply input |
| 8-9 | Door breakdown input |
| 8-10 | Digital input |
| 8-11 | Probe 1 input (room probe) |
| 8-12 | Probe 2 input (evaporator probe) |

**OCTOPUSH** — OTC8321 - O

| Buzzer NONE | Probe : NTC |
|-----|-----|
| Supply 220V AC | Rev.3 |

TSEK CE

1 2 3 4 5 6 7 8 9 10 11 12

Defr. Comp. Fan    Supply 220V AC    Com. Dor    Dia Pr1 Pr1

## OTC8330

Management unit with three probes
and three relays (for refrigeration)

This product is a remotely managed refrigeration control unit with 3 temperature probes, 3 relays, and 2 digital inputs for low and moderate temperature applications.
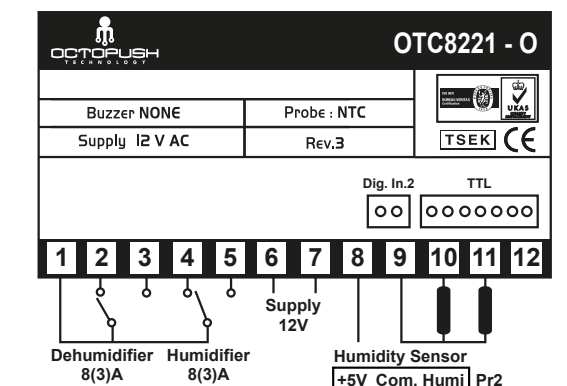
| 1-2 | Normal closed defrost relay output |
|-----|-----|
| 1-3 | Normal open defrost relay output |
| 1-4 | Compressor relay output |
| 1-5 | Fan relay output |
| 6-7 | 12 Volt supply input |
| 8-9 | Digital input 1 |
| 8-10 | Probe 1 input (room probe) |
| 8-11 | Probe 2 input (evaporator probe) |
| 8-12 | Probe 3 (condenser probe) |
| TTL | TTL output for RS485 connection |
| Dig In 2 | Digital input 2 |

**OCTOPUSH** — OTC8330 - O

| Buzzer INSIDE | Probe : NTC |
|-----|-----|
| Supply 12V AC/DC | Rev.3 |

TSEK CE

Dig. In.2    TTL

1 2 3 4 5 6 7 8 9 10 11 12

Defr. 8(3)A  Comp. 8(3)A  Fan 8(3)A    Supply 12V    Dig In.1  Com. Pr1 Pr2 Pr3

## OTC8221

Management unit with two probes
and two relays (for humidity control)

This product is a remotely controlled humidity management unit designed to humidify cold rooms that are used for mild and moderate temperature applications. It comes with 1 humidity probe, 1 temperature probe, and 2 relays.
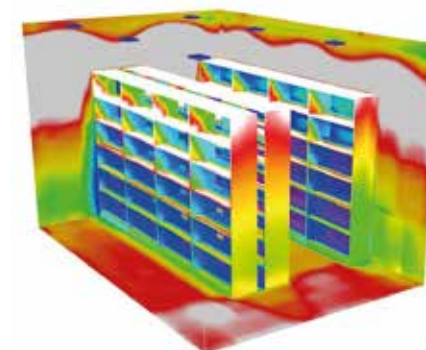
| 1-2 | Normal closed humidity relay output |
|-----|-----|
| 1-3 | Normal open humidity relay output |
| 1-4 | Humidification relay output |
| 6-7 | 12 Volt supply input |
| 8 | +5V humidity probe supply output |
| 9-10 | Humidification probe input |
| 9-11 | Probe 2 input (room probe) |
| TTL | TTL output for RS485 connection |
| Dig In 2 | Digital input 2 |

**OCTOPUSH** — OTC8221 - O

| Buzzer NONE | Probe : NTC |
|-----|-----|
| Supply 12 V AC | Rev.3 |

TSEK CE

Dig. In.2    TTL

1 2 3 4 5 6 7 8 9 10 11 12

Dehumidifier 8(3)A  Humidifier 8(3)A    Supply 12V    Humidity Sensor +5V Com. Humi Pr2

# Octoled™

cold room lighting
(lux) project

Shortly known as **LED** (led emitting diode), this new technology is due to light up our streets and homes after our cars. This lighting system has record-breaking durability.

A **LED** light bulb's life cycle reaches up to 100,000 hours, depending on its operating current, colour and heat.

Although this lighting system is very new it's used in a wide range of areas from headlights to households.

## the future light source in cold storage

**L**ED lighting is considered to be the greatest revolution in lighting technologies since Edison invented the lamp. **LED** light bulbs have started to replace commonly used halogen, met al-halide, fluorescent, and sodium light bulbs.

**LED** light bulbs will be the light source of the future owing to their high efficiency, low energy consumption and life cycle up to 100,000 hours.

These devices are based on a semi-conductive technology placed inside a module that is assembled to the surface of a standard lamp body.

What better than a lighting system that can last 8 hours a day for 35 years and, moreover, consumes ten times less electricity than a regular light bulb?

15cm

43,5cm

8cm
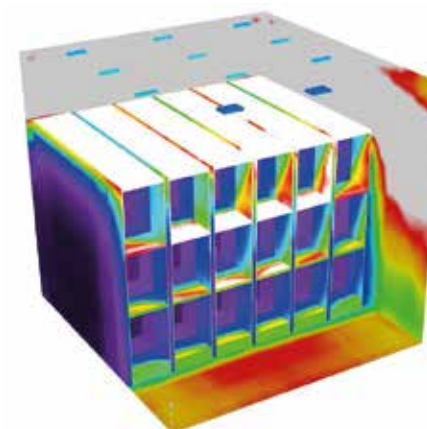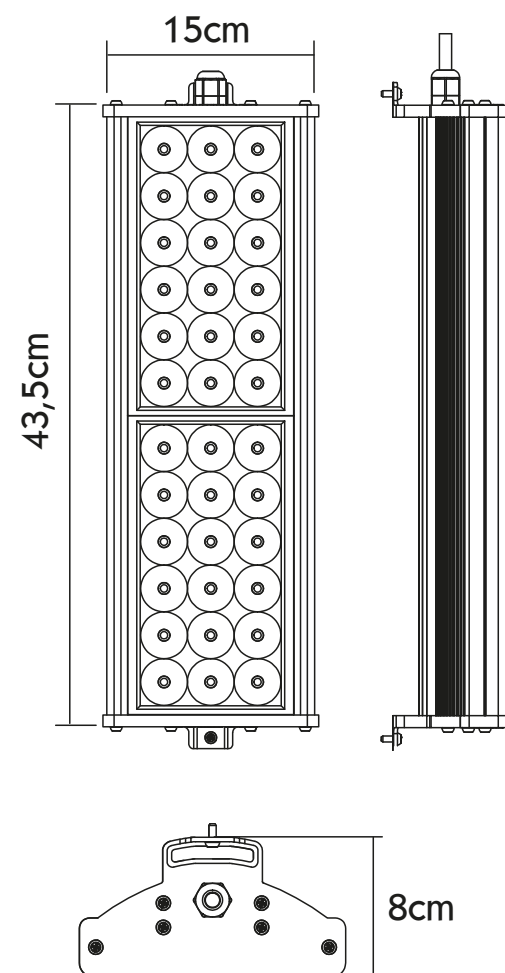
Moreover, the benefits of this technology are not limited to durability, it also offers significant savings in electricity consumption.

If the share of **LED** lights reaches 50% in the US market, electricity consumption will reduce by 17 gigawatts across the nation, which is the exact equivalent of 17 conventional nuclear plants.
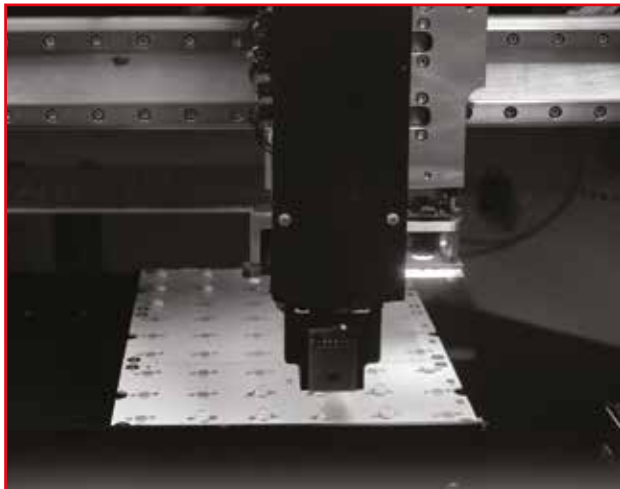
# a new era in cold room lighting

LED lighting systems are used in a wide range of lighting applications. Now, for the first time ever in the world LED lights are used in cold rooms under the brand name OCTOLED.

Cold, which has negative effects on other lighting systems, contributes positively to the life cycle of LED lights.

LED lighting does not exude heat in cold environments. Similarly, its luminosity does not decrease when exposed to cold environments, unlike other lighting systems. OCTOLED has completed all R&D studies from -40°C to +35°C with 15,000 lighting fixtures over a span of 5 years. Please contact us to receive a lighting project for your room layout FREE-OF-CHARGE.

## Octoled benefits

Life cycle up to 100,000 hours.
Very low energy consumption.
Easily replaces former fixtures.
Works immediately when switched on.
Provides direct 220V AC supply.
Maintenance free.
Durable against shock and vibrations.
Does not contain fragile elements like glass and filaments.
Does not contain ultraviolet and infrared light and is much safer to use in the food industry and for products that are sensitive to light.
Environmentally friendly. Does not contain heavy metals such as mercury or halogen gases.
Can work in -40°C.
Preferred for use in cold rooms owing to its ability to work in dry and wet conditions.

# effects of cold environments on lighting systems

Normal and compact fluorescent (energy-saving) lights used for cold room lighting are being replaced by LED fixtures. The main reason behind this being that normal and compact fluorescent lights lose their lighting capabilities in cold rooms.

The tests were performed under storage room temperatures of 5°C, -5°C, -18°C, and -25°C. The light intensity measured at ambient temperatures during these tests were calculated on a scale of 100 units, which represent their lighting efficiency.
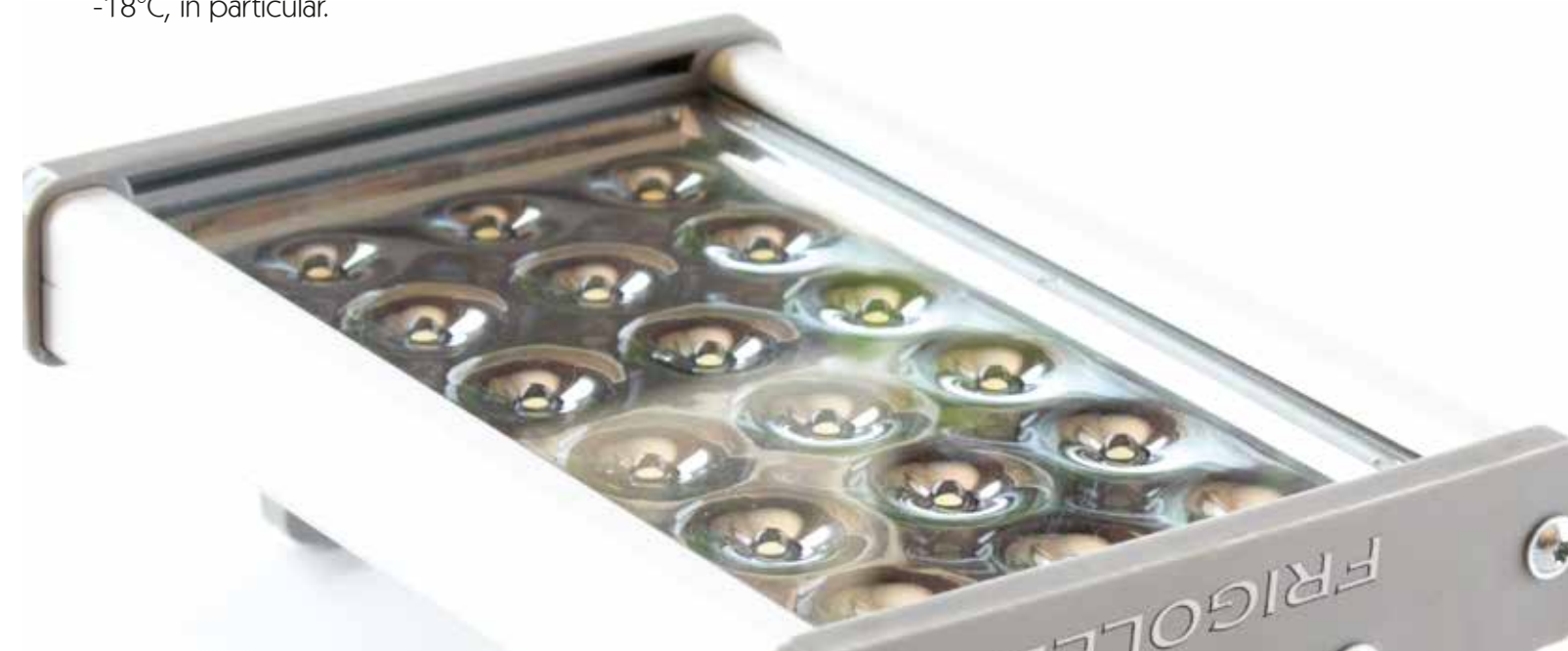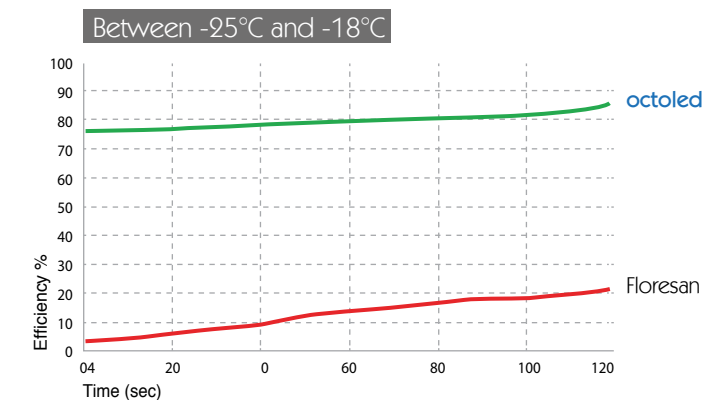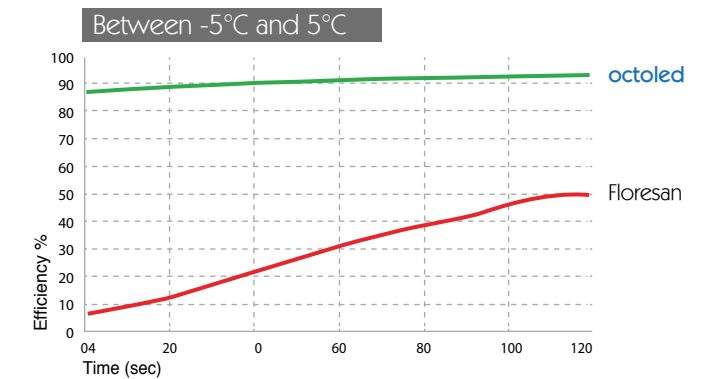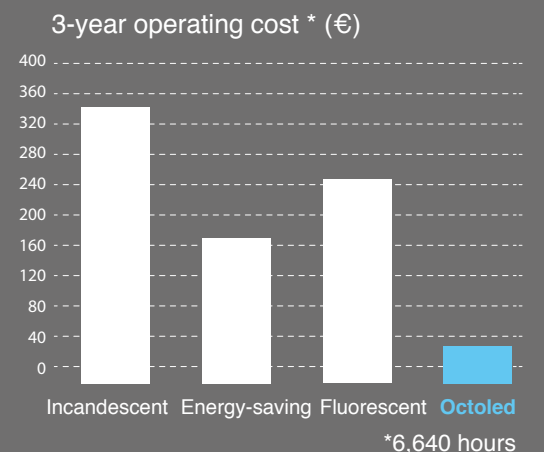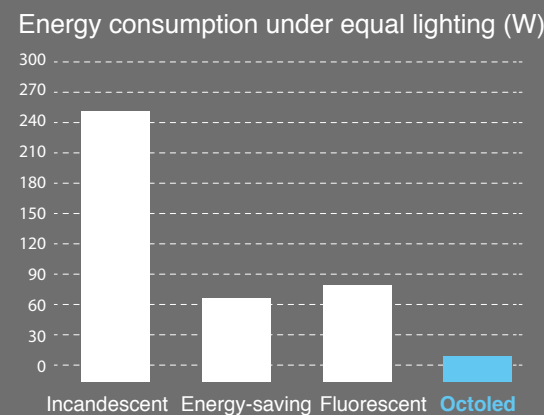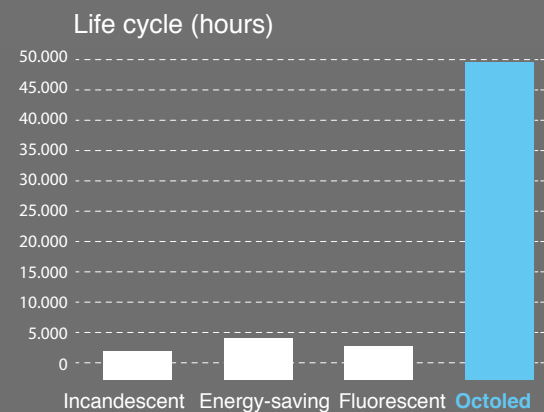
In particular, in temperatures below -15°C the efficiency of normal and compact fluorescent lights dropped to as low as 10%. The light intensity was measured every 10 seconds within a total timeframe of 120 seconds.

Given the lighting efficiency calculated according to these values, it goes without saying that LED fixtures are superior to compact lights.

If we consider that it takes around 120 seconds on average to enter a cold room, load products and exit it, the legacy lighting systems cannot even reach half of their capacity.

LED lighting systems are the only option in terms of lighting intensity and life cycle in cold rooms under -18°C, in particular.

## Life cycle (hours)

(Chart: Incandescent, Energy-saving, Fluorescent, Octoled — scale 0 to 50,000)

## Energy consumption under equal lighting (W)

(Chart: Incandescent, Energy-saving, Fluorescent, Octoled — scale 0 to 300)

## 3-year operating cost * (€)

(Chart: Incandescent, Energy-saving, Fluorescent, Octoled — scale 0 to 400)

*6,640 hours

Between -5°C and 5°C
(Chart: Efficiency % vs Time (sec); octoled, Floresan)

Between -25°C and -18°C
(Chart: Efficiency % vs Time (sec); octoled, Floresan)
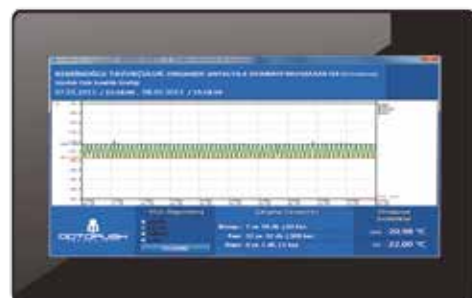
# monitoring cold rooms

Monitoring cold rooms not only allows to introduce discipline for energy consumption, bringing consumption to proper levels, but also enables food and perishable products to be stored in a healthy way. It all started with monitoring only the temperatures but with increased needs, now it is possible to remotely manage cold rooms by analysing various parameters.

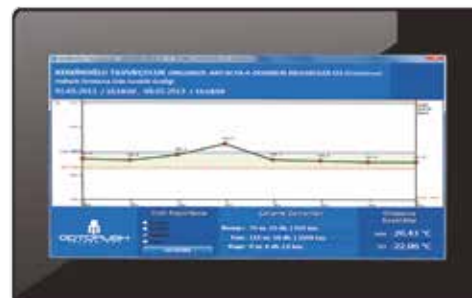Since its first launch, **Octopush™** management units have been designed to allow for remote monitoring and management.

Many of our patented designs include innovative indicators that show the daily operating time of cold room compressors, daily door-open times, and daily electricity consumption on a TL basis. These unique indicators that allow for cold room monitoring and management enable customers to manage their monthly electricity bills.

To monitor your cold room, you can either set up your own service using the **Octopush™** technologies or you can receive services by connecting to the **Octopush™** monitoring centre with **Octogate M2M™** using the GSM network and M2M line or with **Octogate lan™** using an Ethernet cable. This portal offers standard services such as sending out warning messages to your mobile phone or inbox.

## do you believe in what you hear or what you see?

We can answer this question with our service package that offers an eye to watch over your storage room.

Our service centre is just a call away. We are at your service to foresee and solve all of your needs and problems, store and report all data (average room ambient temperatures, breakdown logs, door-open/closed status, electricity consumption etc.), identify servicing needs before any breakdowns occur, monitor your energy consumption and offer applicable solutions to reduce consumption, continuously monitor your equipment to ensure longer life cycles and more efficiency, and deliver professional services 24/7.
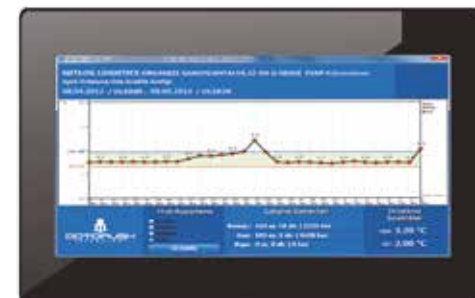
## you can't measure what you don't monitor...







daily ambient temperature graph

weekly ambient temperature graph

monthly ambient temperature graph





energy consumption report

cold room monitoring

# for you, before you!



## Octocenter™ monitoring centre

Product quality, food safety and efficiency require:

1. Monitoring,
2. Service management, and
3. Energy management.

## typical problems in cold rooms

Cold rooms are places that operate 24/7, with their doors continuously being opened and shut throughout the day. Under normal conditions, it is difficult to keep track of their maintenance and breakdowns are generally identified only after a significant rise in the cold room's temperature.

In case of a breakdown, it's all up to the service team to decide on when the team will come for service, the cause of the breakdown and its cost.

Cold room users cannot manage their energy consumption. All they can do is pay the electricity bill at the end of the month. However, **Cantek's** monitoring centre offers solutions to relieve you from all of these problems.

## 1 Self-monitoring and outsourced monitoring services

**Cantek**'s monitoring centre keeps real-time track of your cold room that operates 24/7, from monitoring the doors to sending warnings when the doors have been kept open for too long.

Our monitoring system also reports maintenance times for your cold rooms.

The most important criterion for storage is temperature. You can monitor the storage room temperatures on an annual, weekly, daily or hourly basis as you wish. By using your monitoring centre password you can keep track of your storage rooms and print out the reports.



By entering a certain time interval, you can monitor the cold room's energy consumption on kWh and price basis as well as the daily door-open times.

## 2 service management

One of the main challenges that cold room users encounter is identifying breakdowns and fixing them. In particular, this poses a serious problem for large-scaled facilities and creates the risk of recurrent breakdowns and high servicing costs if meticulous attention is not paid to this issue. **Cantek's** monitoring centre identifies all breakdowns within three seconds at the latest of its occurrence.

Any breakdowns that occur are reported to both the facility's service and the facility owner. **Cantek's** service equipment carry monitoring systems for the devices. This way, it identifies and monitors where the servicing is needed and how long it will take to access the area.

**Cantek's** monitoring centre also supervises the implementation of the servicing, ensuring that it's done in a proper manner, and that the service cost is appropriate. The system also monitors the breakdown for 24 hours after it's fixed to guarantee that the problem is fully solved.



## 3 energy management

**Cantek's Octosense™** and **Octorack™** products are specially designed to allow you to monitor the daily energy that your cold rooms consume.

Thanks to these products you can both keep track of your cold room's daily energy consumption and observe how long the doors have been kept open, how much your energy consumption goes up depending on the quantity of hot products added.

These observations and measures taken accordingly will help you to manage your monthly bills. If you have cold rooms in multiple locations and if your cold rooms serve the same purpose you can compare their energy consumptions and take measures to ensure that they consume the same amount of energy.
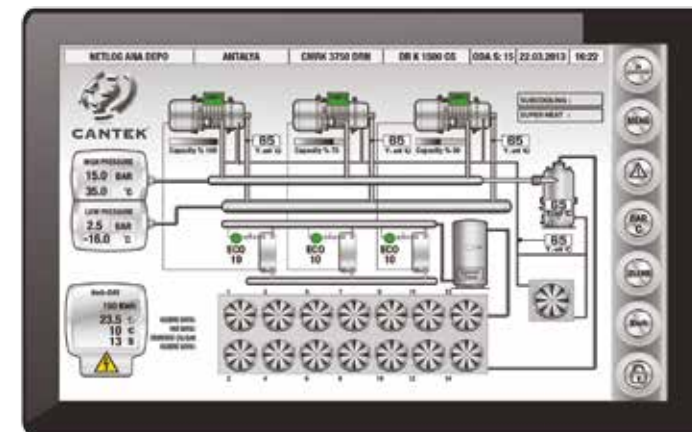


Octorack™ (daily energy consumption)



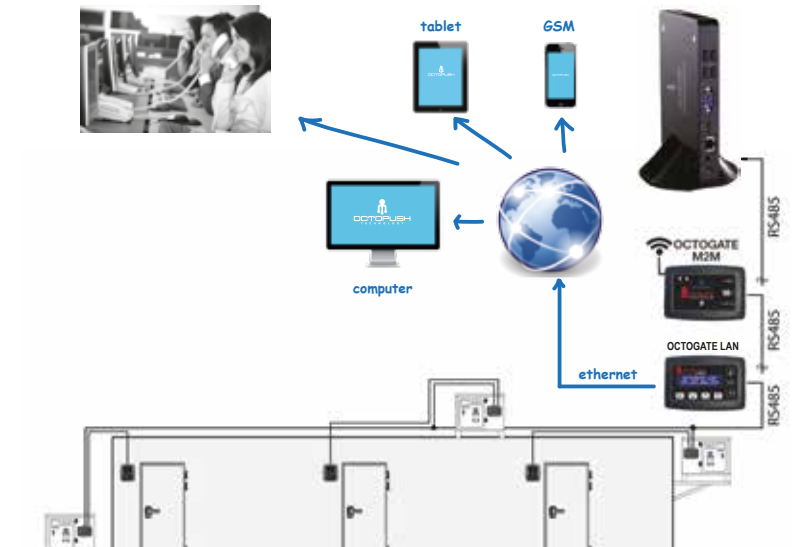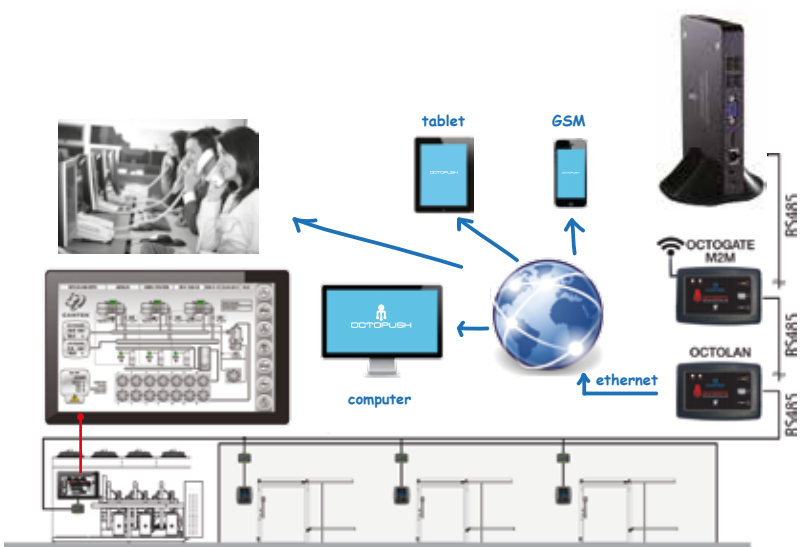Octowatcher™ (real-time energy consumption)



Weekly electricity consumption statement



Door-open time/energy consumption statement
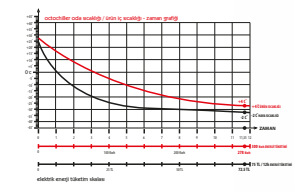
# OCTOPUSH
## TECHNOLOGY PRODUCT

server connection for remote monitoring in central systems

server connection for remote monitoring in split and single-block devices

**OCTOCHILLER**
Chilling Management Units
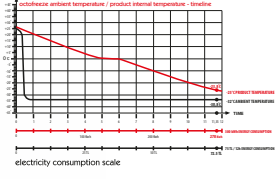controlled refrigeration systems

**OCTOSENSE**
Cold Storage Management Unit
smart refrigeration systems

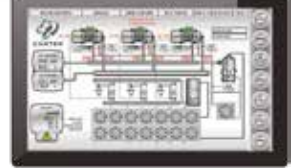**OCTOFREEZE**
Freezing Management Units
quick-freeze systems

electricity consumption scale

**OCTOSERVER**
remote monitoring and management server

**OCTOSENSE**
Cold Storage Management Unit
smart refrigeration systems

**OCTOPUSH**
CLASIC 83 - SERIES
standard refrigeration management units

**FRIGOLED**
lighting fixtures for cold rooms

**OCTOPUSH**
CLASIC 83 - SERIES
standard refrigeration management units

**OCTORACK**
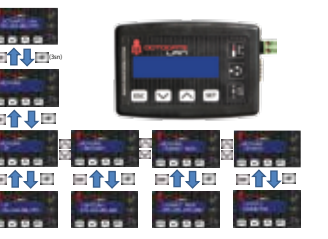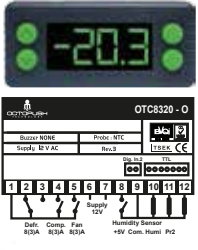Multi Compressor Management Unit
management units for central systems

**OCTOGATE-m2m**
data transfer module with a GSM network

**OCTOGATE-LAN**
data transfer module with an ethernet connections

**OCTOCENTER**
Refrigerations Plant Management Unit
monitoring services for cold rooms

**FRIGOLED**
lighting fixtures for cold rooms

Octosense™ applications for central devices

Octosense™ applications for split and single-block devices