

XRi & XWi

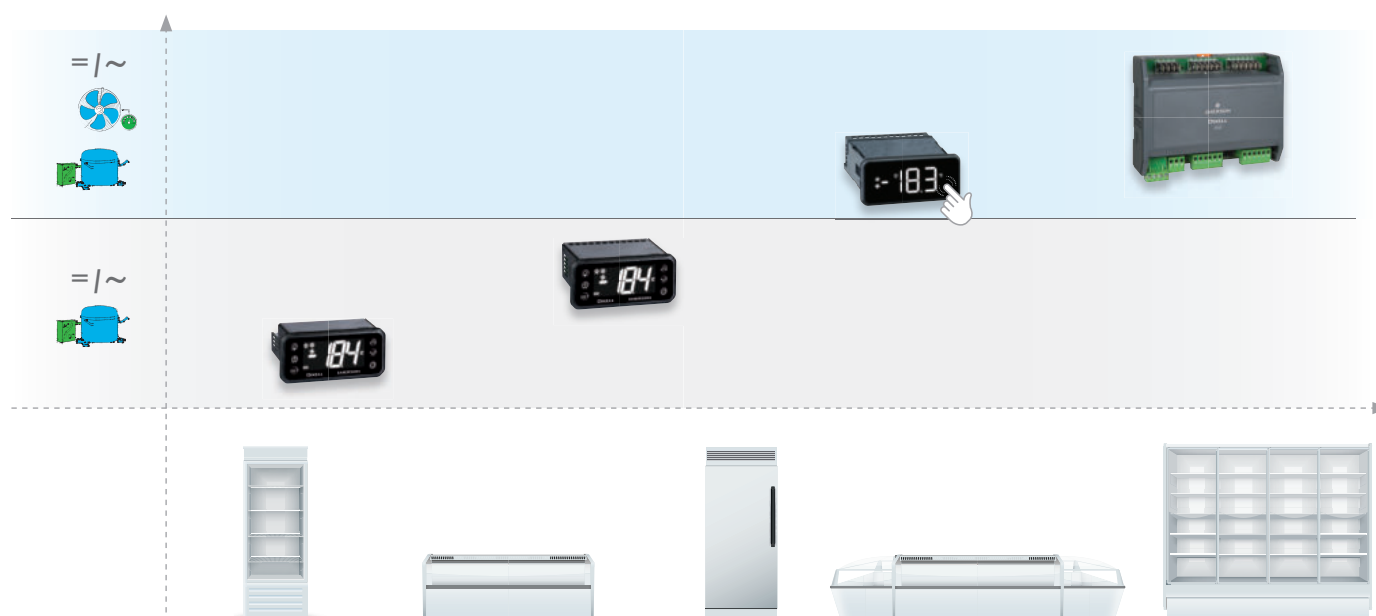
RÉGULATEURS pour APPLICATIONS
avec COMPRESSEURS A CAPACITÉ VARIABLE



Les régulateurs XRi & XWi : la solution idéale pour la réfrigération et la grande distribution. Ils ont été développés pour une gestion optimale des unités à groupes logés avec des compresseurs à capacité variable en utilisant la commande par signal de fréquence. Ces régulateurs garantissent des économies d'énergie élevées, augmentent la fiabilité des compresseurs et des ventilateurs et, en même temps, assurent une gestion efficace de la température de maintien du produit.

- Interface utilisateur conviviale
- Accès direct aux principales fonctions
- Double liste de paramètres pour être utilisée dans différentes applications
- Fonctions avancées intégrées pour l'économie d'énergie
- Optimisation vitesse compresseur/ ventilateur
- Programmation rapide et facile
- Connexion série aux systèmes de supervision
- Réduction des contraintes mécaniques et du bruit

Available
also with
FULL TOUCH
technology



Variable Speed Compressor Solution



XRI_CH

Frequency Control

Controllers for vertical and horizontal plug-in & service counters with Variable Speed Compressors management



XWi_K

Frequency and
Serial Control

Variable Speed Compressor Solution



Our Proposal

XRi_CH series for single compressor control

XWi_K series for single/double compressors control and variable speed ventilators

Market Trends

- Effective Energy Management (variable speed compressor, EC Fans)
- Natural Refrigerants R290 and R600 compatibility
- New energy label (Eco Design directive)
- Extended appliance reliability
- Improved food control and quality

Variable Speed Compressor & Natural Refrigerant Solutions

Plug-in and service counters



Frequency Control



Frequency and Serial Control

Inverter management



Main features

FEATURES & BENEFITS

- Dual compressor control
- EC fan speed control
- Diagnostic
- SECOP and Embraco compressors management

HARDWARE XRI_CH

- Up to 4x configurable relays
- 1x RS485 port (only XRI77)
- Up to 4 temperature probes
- Up to 2 digital inputs

HARDWARE XWi_K

- 5 configurable relays
- TTL port for monitoring
- Serial port (2x compressor and 4x fan control)
- 4 temperature probes
- 2 digital inputs

Variable Speed Compressor & Natural Refrigerant Solutions

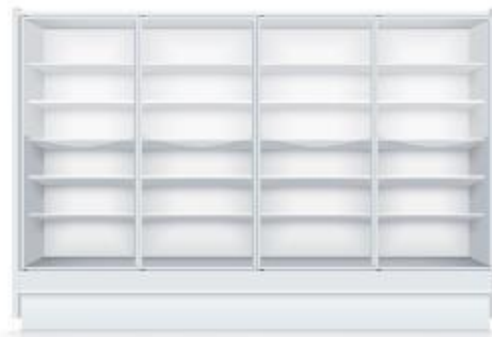
ISLAND



FREEZER



BOTTLE COOLER



WALL COUNTER

Features & Benefits

- Complete applications range coverage
- Reduction in reactive power demand
- Efficient management of product maintenance temperature



Models & Availability



Models

XRi_CH series

- XRi20CH (1x VSC + 1 relay)
- XRi60CH (1x VSC + 3 relays)
- XRi77CH (1x VSC + 4 relays)

XWi_K series

- XWi70K (1x VSC + 5 relays), VSC with frequency control only
- XWi70K (2x VSC + 5 relays), VSC with Serial control

The most complete range for variable speed compressor controllers

XRi_CH

DIGITAL CONTROLLER FOR FREQUENCY CONTROL

XRi_CH Series

General Description



These controllers are the ideal solution for the refrigeration and retail market. They have been developed for optimal management of cabinets with variable capacity compressors by using frequency signal command.



XRi_CH Series

Main Features



FOOD QUALITY

The accurate temperature regulation, the display of events and the alarm management assure the best quality of fresh and frozen food



INTEGRATED FUNCTIONS FOR ENERGY SAVING

The controllers have integrated functions for energy savings, such as the optimization of fan management



PROTECTION & HYGIENE GUARANTEED

The flat surface is easy to clean for much better hygiene. The IP65 high level of front protection is guaranteed

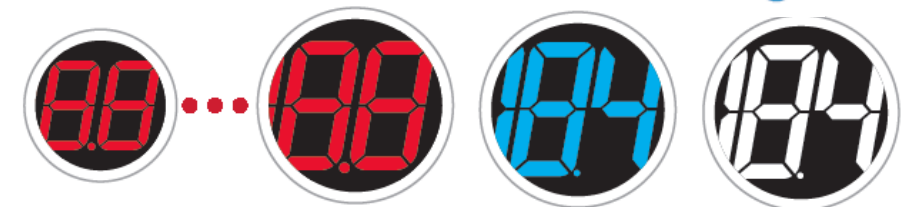


BETTER VISIBILITY AND AESTHETICAL SOLUTIONS

A look that stands out for its elegance and sophisticated detail, a variety of color displays give the controllers an unmatched aesthetic appeal. Controllers have a wider display with integrated icons for the display of data in real time and provide measurement units for clear and continuous monitoring

ECO

Dedicated icon for energy saving status information



Larger display for improved visibility display (+40% compared to the CX version).

Available in multiple colors: red (standard), white, or blue.

XRi_CH Series

Main Features



HIGH FLEXIBILITY

XRi77CH has 2 different configurations (parameter maps) onboard. It is possible to control, for example, both counters in LT and NT by changing the functional configuration, and also to manage NTC, PTC and PT1000 temperature sensors.



LESS NOISE AND MECHANICAL STRESS

The inverter + compressor system is characterized of lower vibrations: this minimizes the mechanical stress for the whole cooling system and ensures a longer life of the various components. This technology ensures a considerable reduction of noise levels of the application.



REDUCED DEPTH

Often shallow mounting spaces require custom-fit controllers, which can mean high costs. The XRi20CH model is designed to satisfy limited space requirements in commercial refrigeration with elegance and powerful hardware.



IMPROVED RELIABILITY

Reduction of the absorption peaks at startup thanks to the inverter-controlled compressor.



DOUBLE PARAMETER MAP

As a result of the two parameter configurations (maps) available to the customer, the controller can be used in different applications. In fact, the same instrument can control, for example, low temperature counters as well as normal temperature counters. The default setting can be changed from a duly configured key. NTC, PTC and PT1000 temperature probes can also be managed.

XRi_CH Series

Main Features



ADVANCED HOT-GAS DEFROST CONTROL

The hot-gas defrost operations have been optimized through the introduction of specific functions able to control the pre- and post-defrost phases. It is also possible to directly control the activation time of the heating resistors, which are normally placed under the drainpipe, in order to melt the ice that may be present before starting any defrost phase.



STABILIZATION OF THE TEMPERATURE OF THE PRODUCTS

Varying the compressor speed, and then the cooling capacity of the system, allows controlling in a more precise way the temperature of the product. It is also possible to drastically reduce the fluctuation of the temperature of the products due to the use of standard ON-OFF compressors. This permits a better preservation of the product itself.



REGULATION BASED ON THE AVERAGE OF 2 TEMPERATURES

These models can regulate temperatures by using a value which is the average between 2 different points. This function is useful in wall cabinets where it is important to monitor both suction and discharge temperatures.



SERIAL COMMUNICATION

The communication with monitoring systems is becoming even more important also in the commercial refrigeration. For this reason these controllers have a TTL serial communication port with ModBUS-RTU protocol.



ENVIRONMENTALLY FRIENDLY

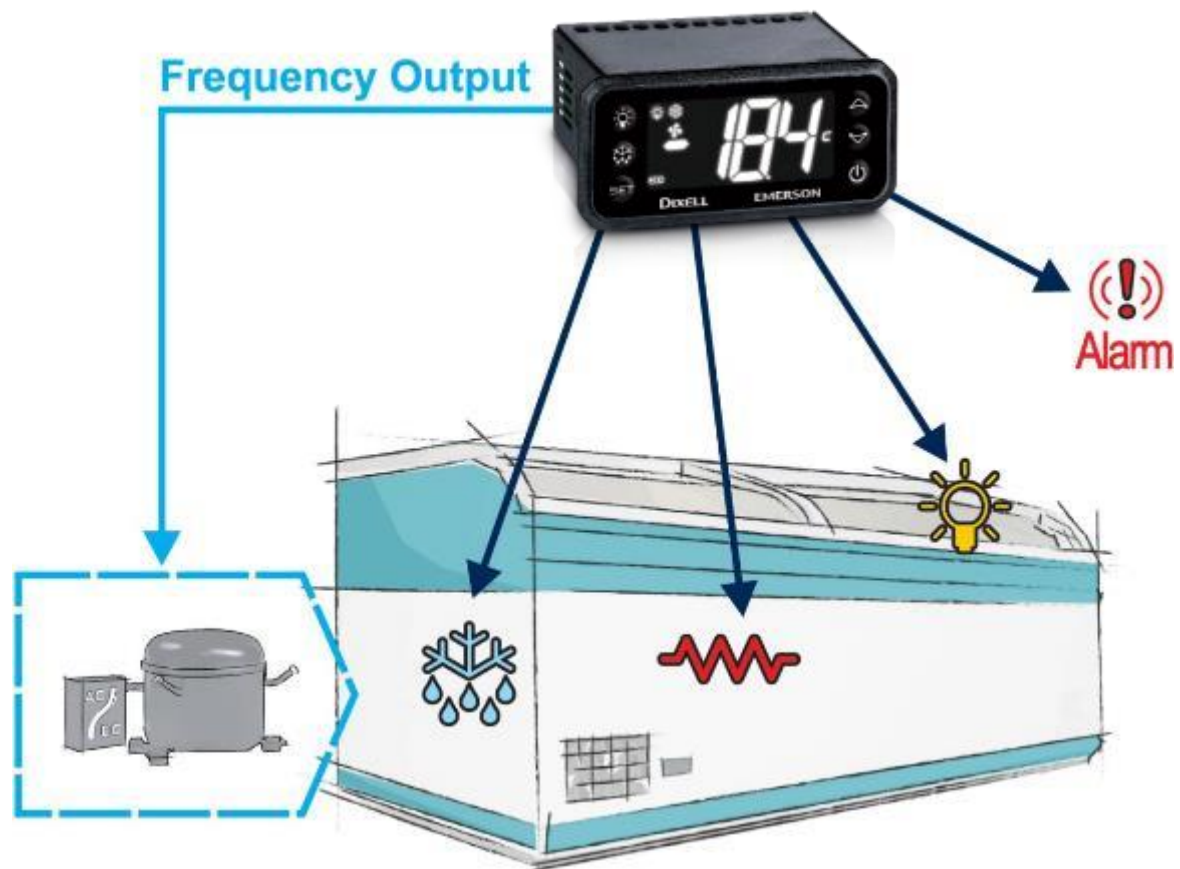
We firmly believe in the respect and safeguard of the environment and respond to the requests of environmental-friendly gas usage, such as Propane.

All Dixell controllers have the CE certification. As regards UL and ENEC, it depends on the specific model.

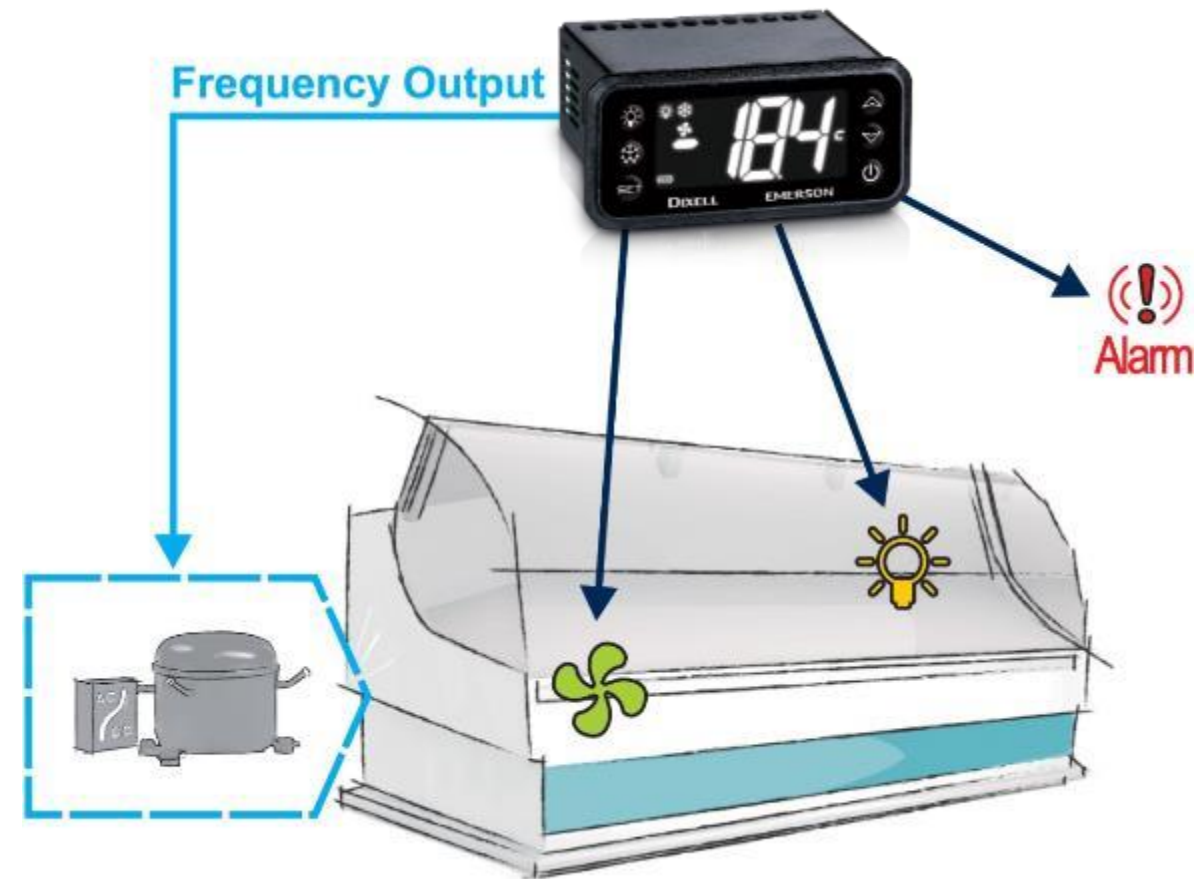
All controllers mount relays suitable for ATEX applications as they have been tested following **EN60079-15**.

Example of X Ri_CH application

HORIZONTAL CLOSED TRANSPARENT EQUIPMENT

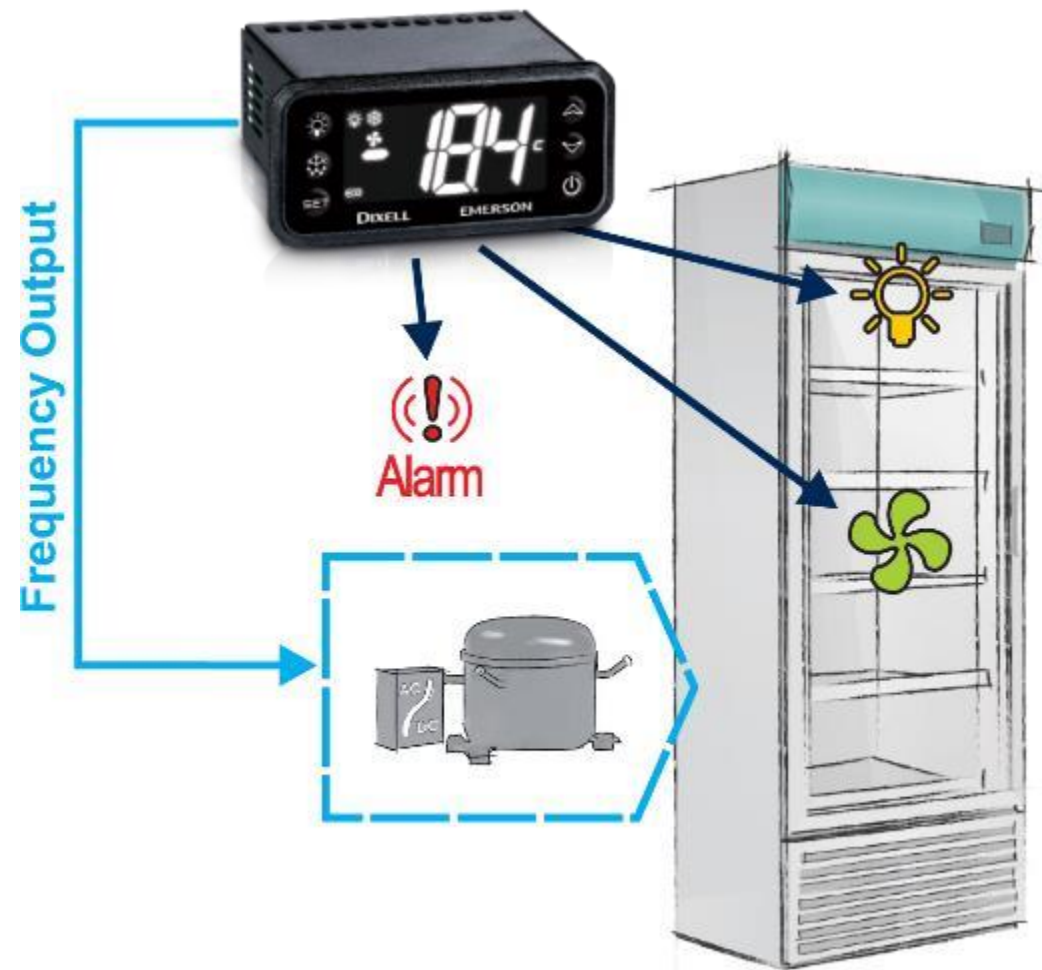


SERVICE OVER COUNTER

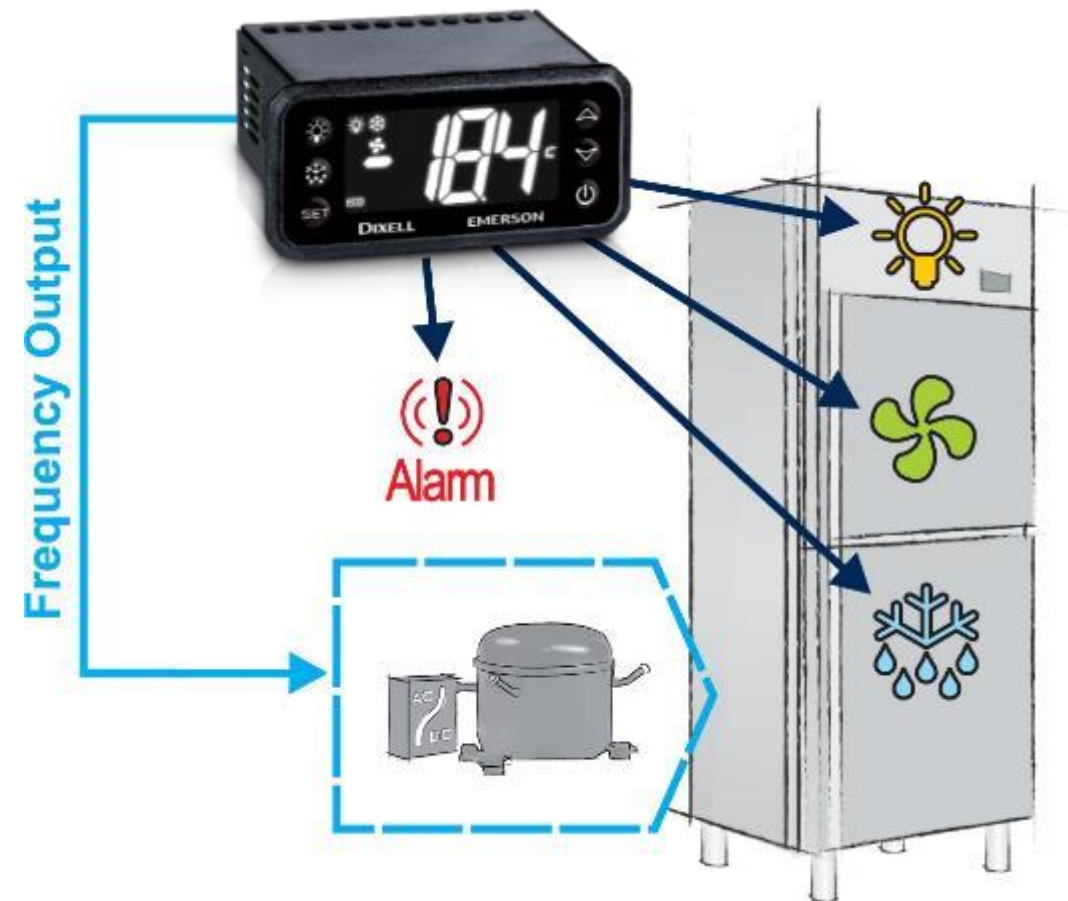


Example of X Ri_CH application

WINE & BOTTLE COOLER



VERTICAL CLOSED SOLID EQUIPMENT (FREEZER)



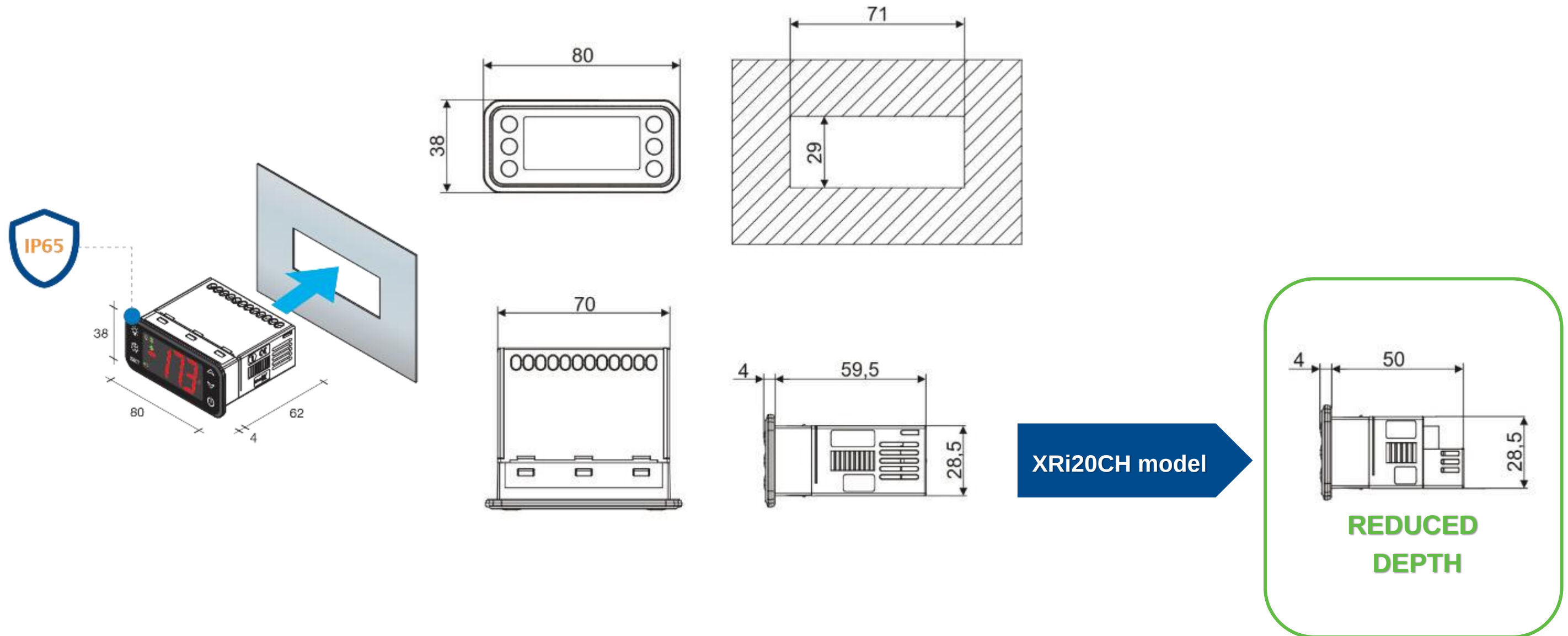
XRi_CH Models

Technical Data

	XRi20CH	XRi60CH	XRi77CH
Housing	Self-extinguishing PC+ABS	Self-extinguishing PC+ABS	Self-extinguishing PC+ABS
Dimensions	32x74mm, depth 50mm	32x74mm, depth 59,5mm	32x74mm, depth 59,5mm
Display type	± 3 digits with decimal point	± 3 digits with decimal point	± 3 digits with decimal point
Power Supply	110 or 230Vac	110 or 230Vac	110 or 230Vac
Probes Inputs	1x NTC/PTC/PT1000	Up to 3x NTC/PTC/PT1000	Up to 4 x NTC/PTC/PT1000
Digital Inputs	1 x configurable	1 x configurable	Up to 2 x configurable
Relay outputs (nominal ratings)	8A SPDT	20+8+5A	16+16+5+7A
Serial output	TTL 5-wire slave	TTL 5-wire slave	RS485 2-wires slave
Buzzer	Optional	Optional	Optional
Hot Key	Available	Available	Available
RTC	Not available	Optional	Optional

XRi_CH

Dimensions and Cut-Out



XRi_CH

Main Accessories

HOT-KEY

Key for a quick and easy upload (from device to HOT-KEY) or download (from HOT-KEY to device) of the parameter map.



CAB/EM5

2m adapter cable for frequency control of Embraco compressors

CAB/SE5

2m adapter cable for frequency control of SECOP compressors

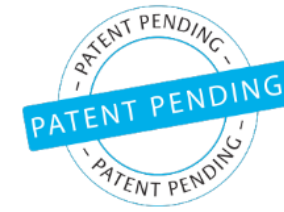


XJ485USB-KIT

USB to RS485 serial (2-wire) converter for monitoring a single or multiple controller connected via the network to a computer with a USB port and with Wizmate® software installed



XR-T & XRI-T Models



XRi-T: optimized regulation for eco-design

- Designed to control a variable speed compressor (Embraco or SECOP)
- Dedicated function for condenser management
- 0-10Vdc analogue output to modulate the condenser ventilator speed and optimize the regulation



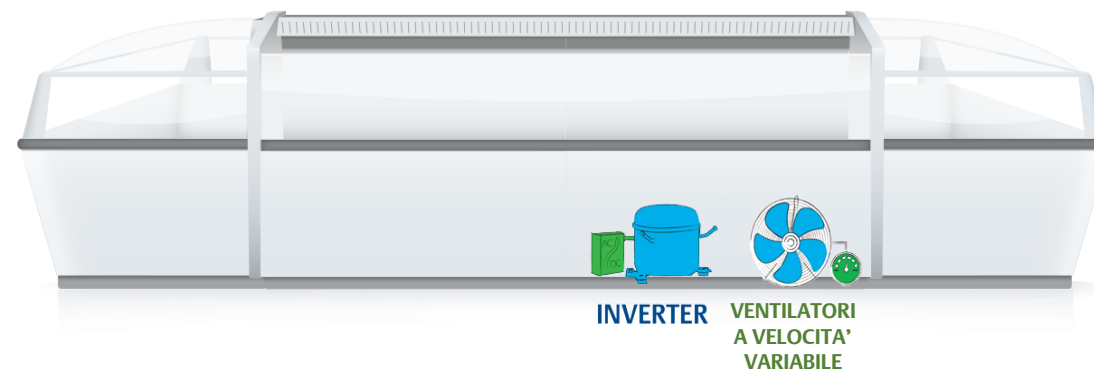
Very stable temperature for a better long-time food conservation



Decrease total energy consumption

FREQUENCY OUTPUT

0-10Vdc OUTPUT



Horizontal plug-in:

- Low temperature configuration
- Variable speed compressor (**Freq** output)
- Variable speed for condenser ventilators (**0-10Vdc** output)

Main applications

STANDARD CABINETS

- ON/OFF compressor and ventilators
- Limited energy saving options normally obtained through setpoint change at predefined intervals (the setpoint change needs a real time clock)



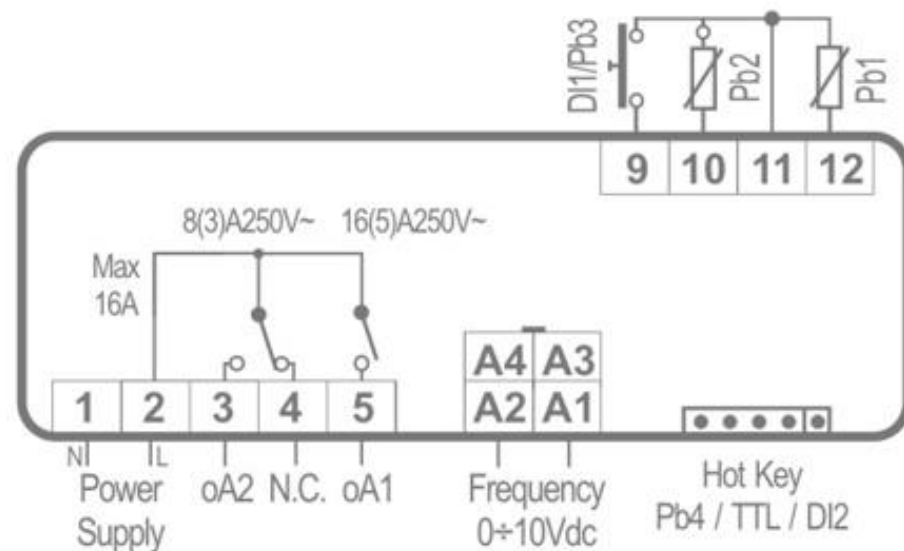
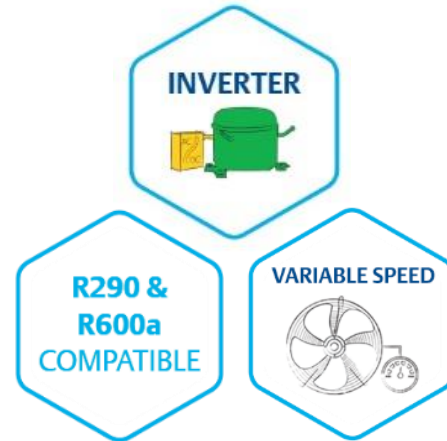
HIGH EFFICIENCY CABINETS

- Variable speed compressors and/or variable speed ventilators
- Energy saving performed by using a basic algorithm for setpoint change when there is no activity (no door openings)
- Lights controlled also in energy saving mode
- External motion sensor (Dixell X-MOD model) to modify both setpoint and light status depending on the people presence on the surroundings
- Optimized defrost control to avoid energy waste

Model features

Features	XRi30T 	XRi31T 	XR60T	XR70T
Display: number of digits	3 digits with decimal point	3 digits with decimal point	3 digits with decimal point	3 digits with decimal point
Power supply	110, 230Vac or 90÷260Vac	110, 230Vac or 90÷260Vac	110, 230Vac or 90÷260Vac	110, 230Vac or 90÷260Vac
Probe inputs				
Thermostat, defrost, evaporator fans, condenser, AUX	3xNTC/PTC or PT1000 all configurable	3xNTC/PTC or PT1000 all configurable	up to 4xNTC/PTC or PT1000 all configurable	up to 4xNTC/PTC or PT1000 all configurable
Digital Inputs				
Generic alarm, alarm lockout, pressure switch alarm, door switch, start defrost, AUX, energy saving, ON/OFF, map change	up to 2xconfigurable	up to 2xconfigurable	up to 2xconfigurable	up to 2xconfigurable
Relay outputs				
ON/OFF, defrost, evaporator fans, condenser fans, alarm, light, AUX, energy saving	16A + 8A SPDT all configurable	16A + 8A SPDT all configurable	16A + 8A +8A SPDT all configurable	16A + 8A + 8A SPDT + 5A all configurable
Other				
Hot Key output	pres	pres	pres	pres
Frequency output	pres	pres	-	-
0-10Vdc output	-	pres	-	-
Serial output	TTL	TTL	TTL	TTL
Buzzer	config	config	config	config
Real time clock	opt	opt	opt	opt

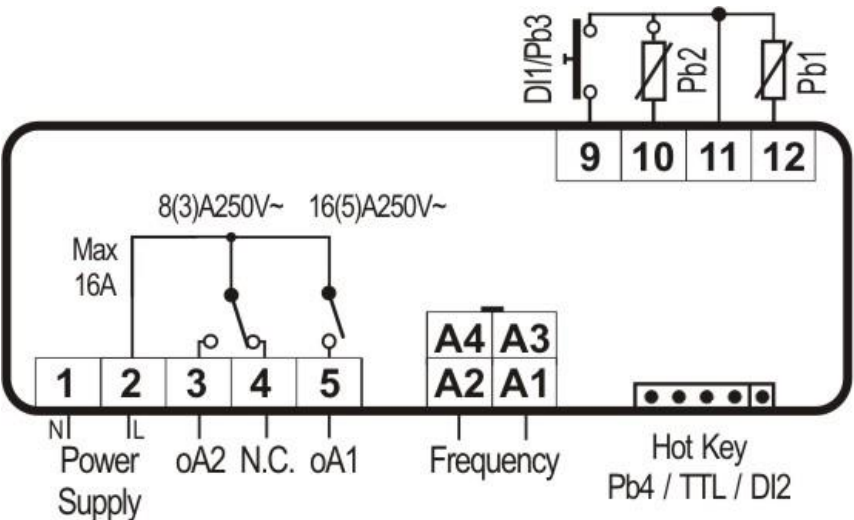
XRi31T model



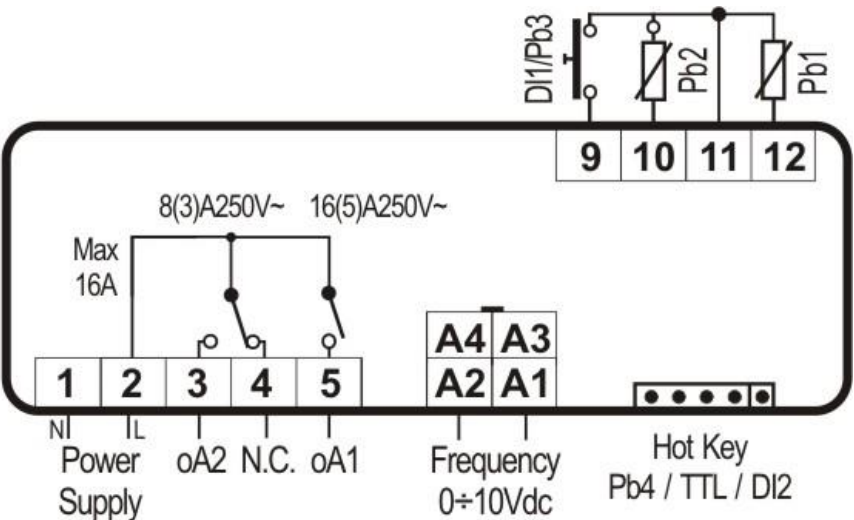
Features & Benefits

- Up to 4 analogue inputs available
 - Up to 4 NTC, PTC or PT1000 configurable inputs
 - Up to 2 digital inputs (free of voltage)
- Every single probe is configurable
- Every single relay is configurable
- Wide range power supply available (100-240VAC)
- CE, UL and ENEC marks
- Double parameter map with recovery function
- Configurable serial communication baudrate (9.6, 19.2, 38.4 or 57.6 kbaud)
- X-MOD motion sensor for controlling lights or energy saving
- XH-REP remote display supported
- TTL output (alternative to XH-REP)
- Frequency output for variable speed compressor management
- 0-10Vdc analogue output for controlling variable speed ventilators or lights

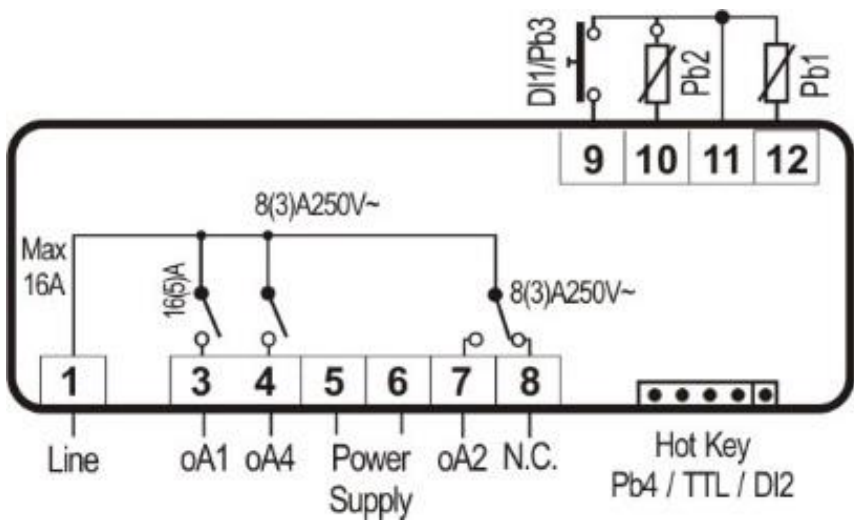
XRi30T



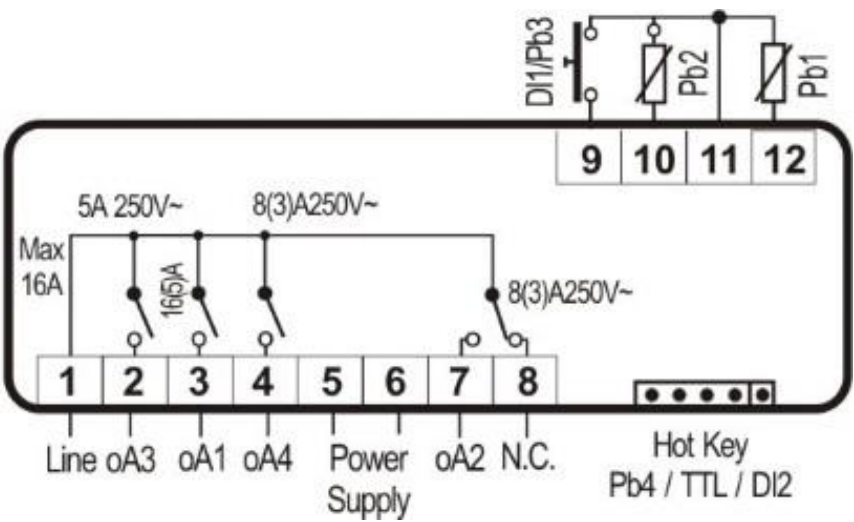
XRi31T



XR60T



XR70T



Main Accessories

X-MOD

Motion sensor with 2m connection cable, able to detect human presence nearby



HOT KEY

Key for a quick and easy parameter update

XH-REP

Remote display with CH frontal



XJ485CX

Serial interface with 0,2m multipolar connector that converts the TTL output into an RS485 signal

XJ485USB-KIT

USB to RS485 serial (2-wire) converter for monitoring a single or multiple controller connected via the network to a computer with a USB port and with Wizmate® software installed



CAB/EM3

2m adapter cable for EMBRACO variable speed compressor (for XRI31T)

CAB/SE3

2m adapter cable for SECOP variable speed compressor (for XRI31T)



XWi_K

DIGITAL CONTROLLER FOR FREQUENCY
AND SERIAL CONTROL

XWi_K Series

General Description



The new XWi controllers are the solution designed for optimal management of plug-in units with variable speed compressors.

They guarantee high energy savings, increase reliability of the compressors and fans and, at the same time, ensure efficient management of the product's maintenance temperature.

Designed for refrigerated cabinets such as open islands and bottle/wine coolers, this series is available in a split version and can be coupled with different types of keyboards, thus fulfilling any type of application.



XWi_K Series

Main Features



LARGE COMPATIBILITY WITH DIXELL KEYBOARDS

This series of controllers is compatible with different types of keyboards, both vertical and horizontal, membrane and glass touch. For more information, refer to the section regarding “Accessories”.



KEYBOARD LOCK

To guarantee additional safety, it is possible to enable the keyboard lock function, both partially by only locking certain keys, and completely.



DOUBLE COMPRESSOR ON/OFF MANAGEMENT

These controllers enable adjustment with a double compressor ON/OFF. This type of adjustment manages activation rotation of the compressors, parallel start-up of compressors (with delay between activation of the first and second compressor) or installing a second compressor with proportional logic.



MANAGEMENT OF COMPRESSORS WITH VARIABLE SPEED (VARIABLE SPEED COMPRESSORS)

They can control a variable speed compressor (VSC) equipped with a frequency control input, or up to a maximum of two VSC compressors with serial control.

With regard to management of a circuit with a double VSC compressor, they are controlled in parallel. The same speed (RPM) value is sent to both compressors.



DOUBLE PARAMETER MAP

As a result of the two parameter configurations (maps) available to the customer, the controller can be used in different applications. In fact, the same instrument can control, for example, low temperature counters as well as normal temperature counters. The default setting can be changed from a duly configured key. NTC, PTC and PT1000 temperature probes can also be managed.

XWi_K Series

Main Features



TYPE OF REGULATORS

This series has different regulators to optimise system operation, such as:

- evaporator fan regulator to manage electronic fans with fixed or variable speed;
- condenser fan regulator to manage electronic fans with fixed or variable speed;
- a maximum of two auxiliary regulators for hot/cold adjustment, for activation of a relay or analogue output.



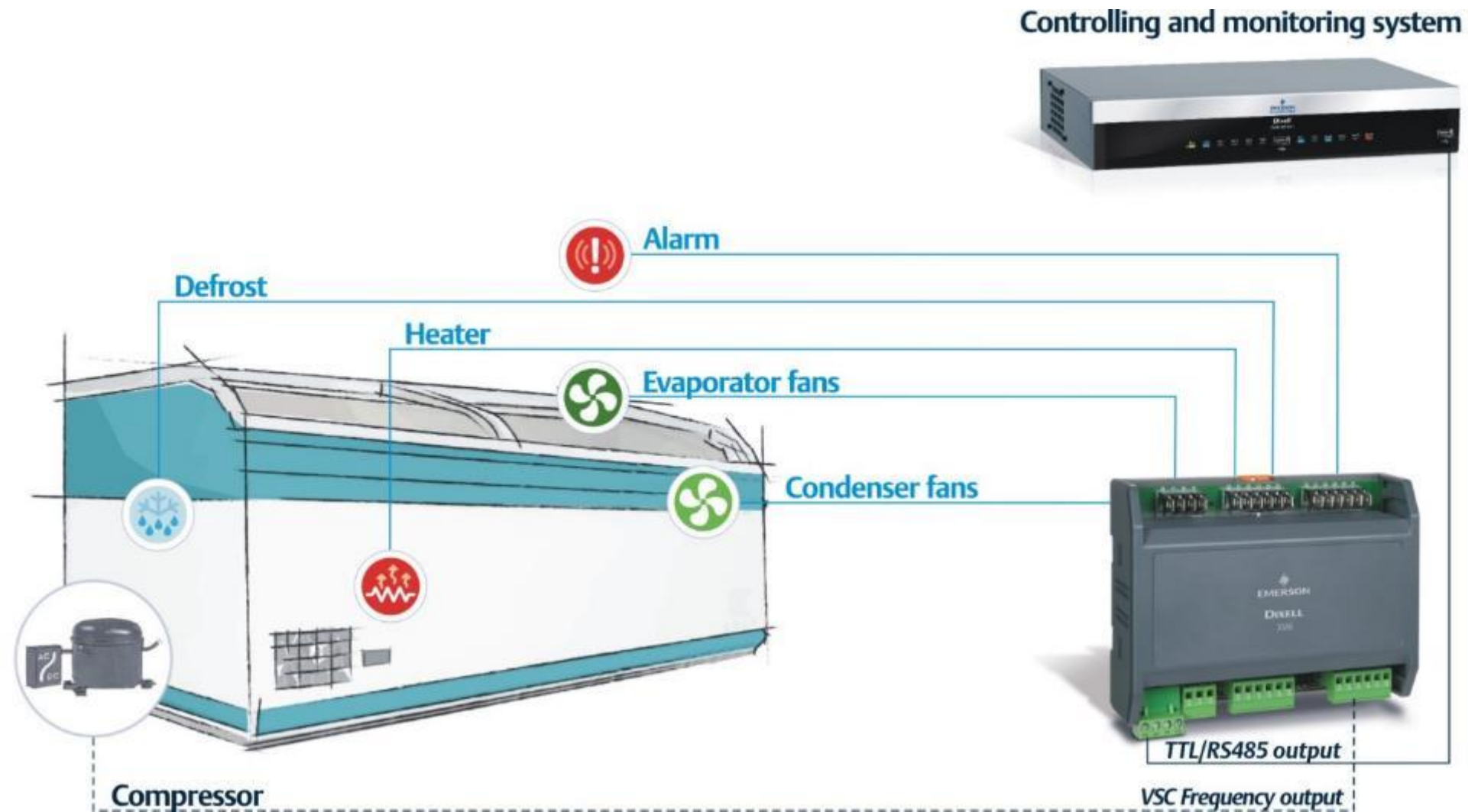
ADVANCED DEFROST CONTROL

The controller manages the defrost mode in different ways:

- **automatic:** it is possible to set defrost start-up simultaneously with activation of the energy saving mode;
- **synchronised:** the defrost occurs simultaneously in a network of up to maximum 20 devices;
- **de-synchronised:** the defrost start-up of one of the devices involves the starting delay of the defrost phases of the other devices on the same network (max 20 devices);
- **random:** maximum 20 controllers that are only virtually connected to the same network and defrost is carried out at “random”; this minimises the system’s mains power supply overload due to simultaneous start-up of multiple defrosting modes.

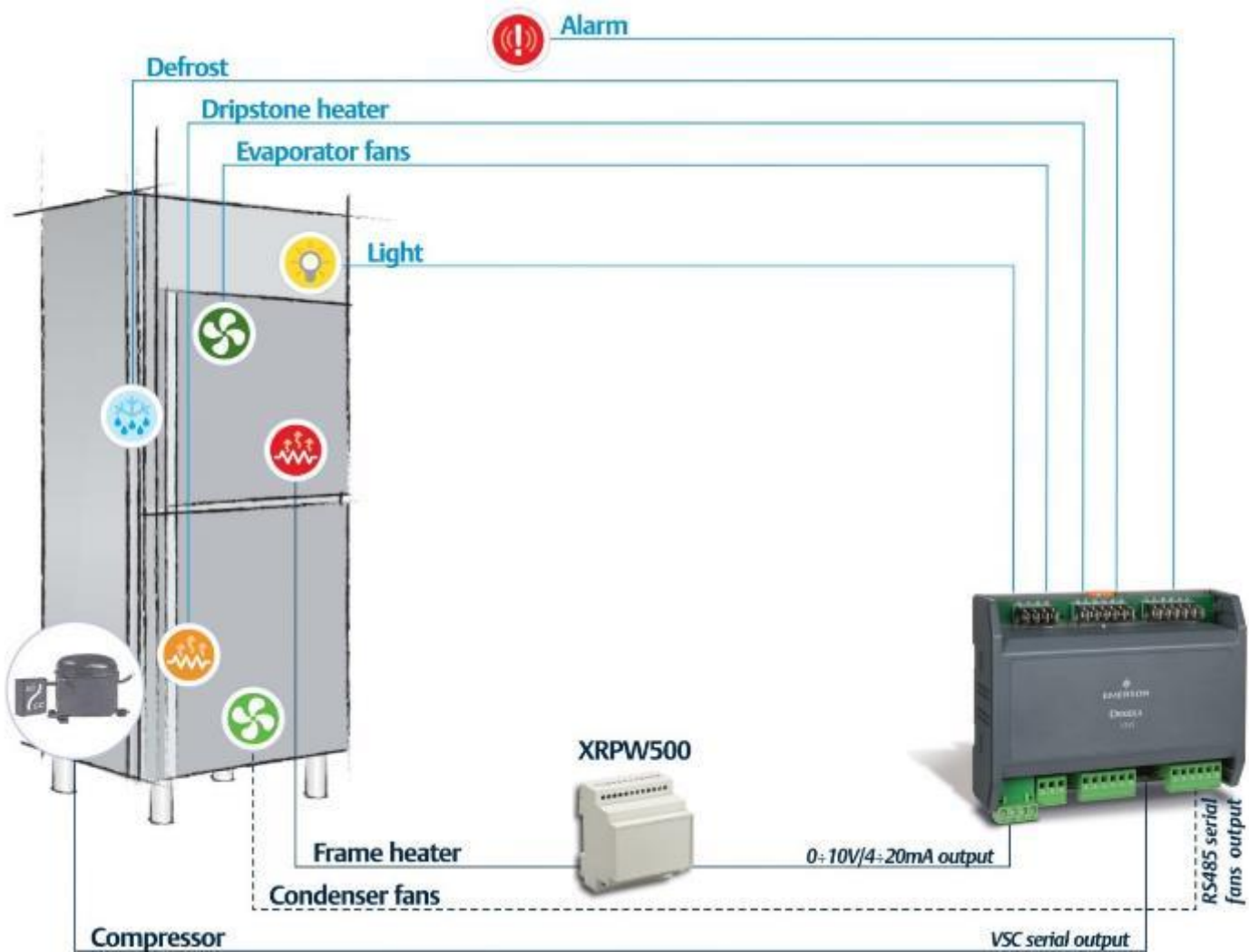
Example of XWi_K application

HORIZONTAL CLOSED, LOW TEMPERATURE COUNTERS (ISLAND)

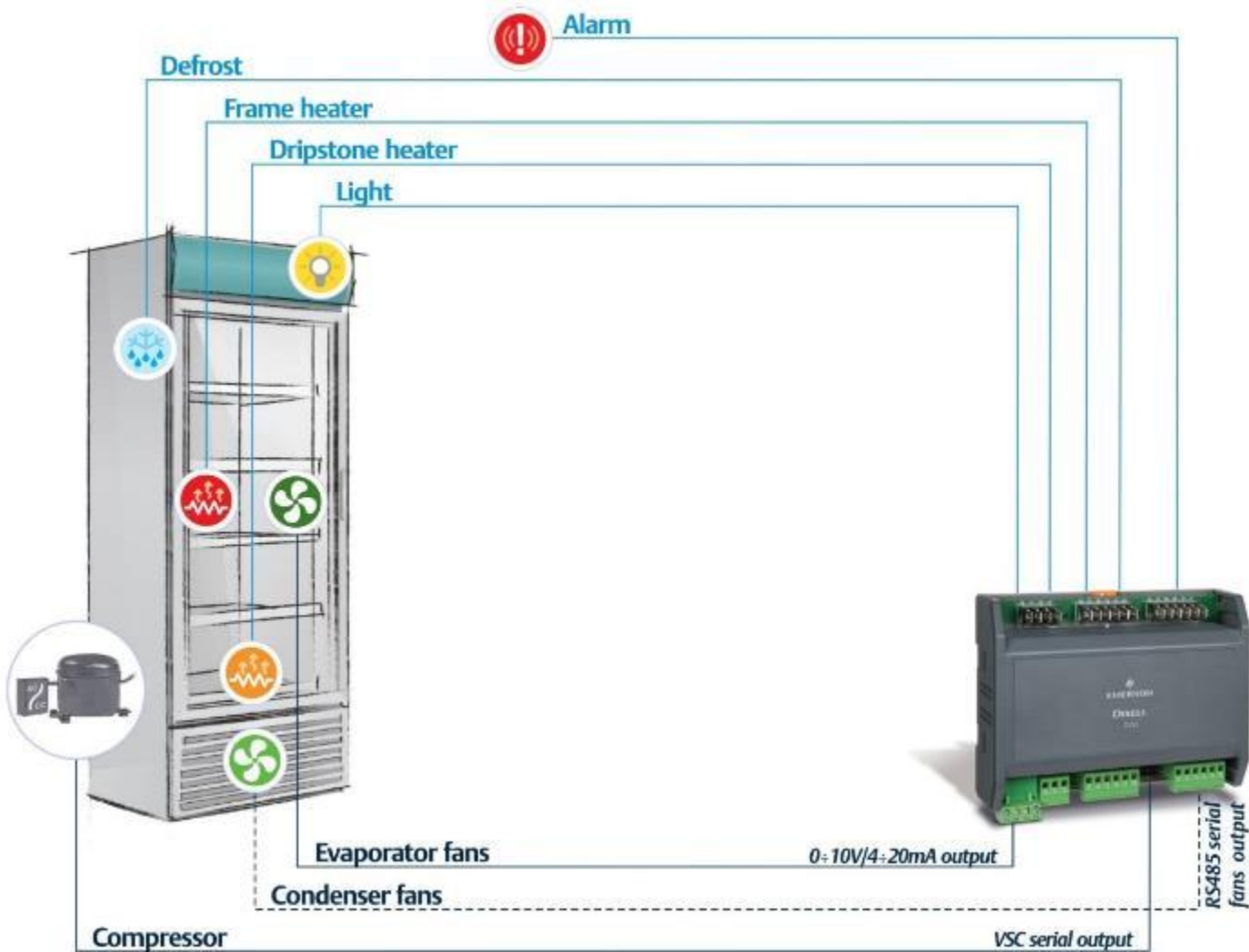


Example of XWi_K application

VERTICAL, LOW TEMPERATURE CABINETS (FREEZER)

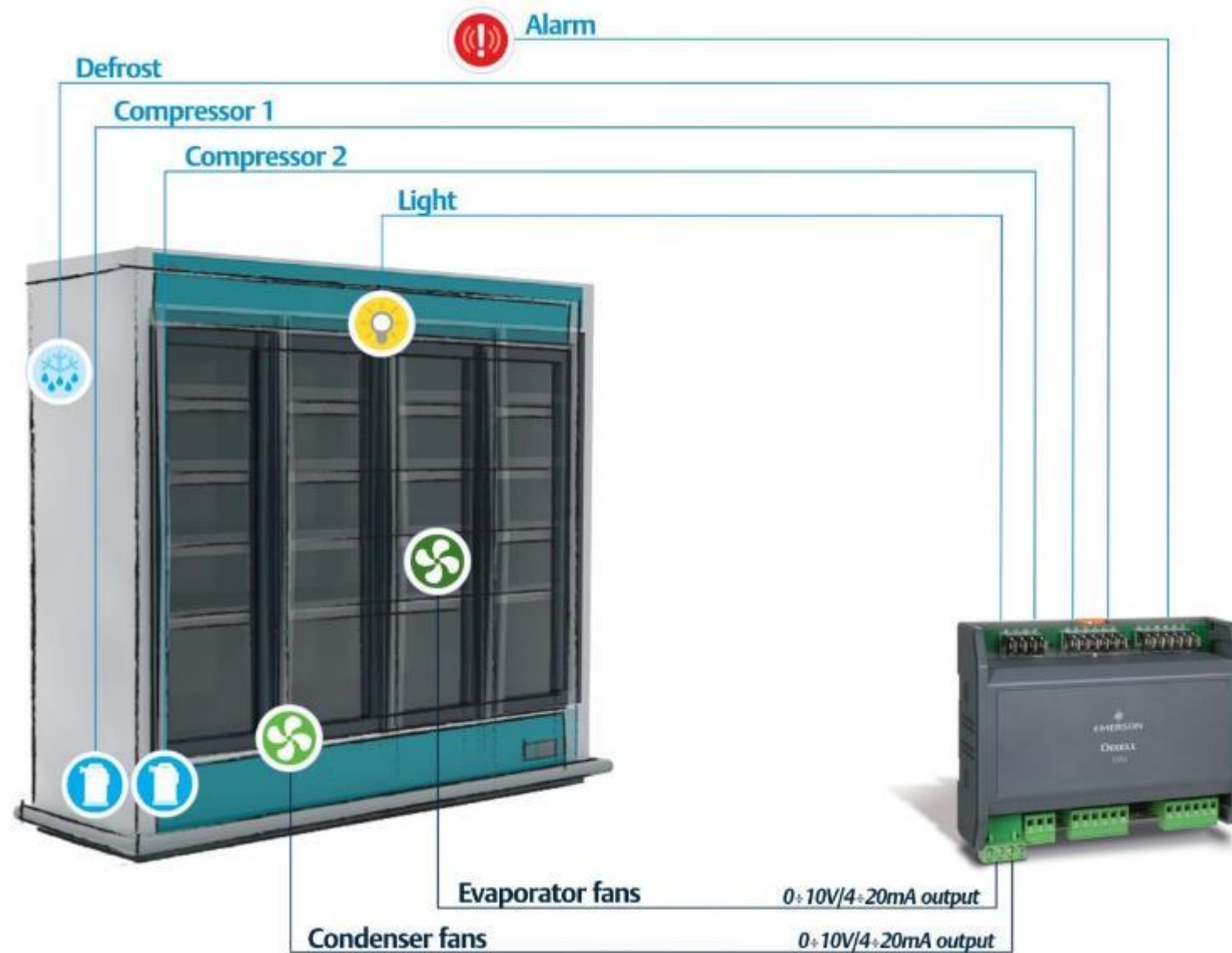


WINE & BOTTLE COOLERS



Example of XWi_K application

WALL, LOW TEMPERATURE CABINETS WITH DUAL ON/OFF COMPRESSOR



XWi_K Series

Technical Data

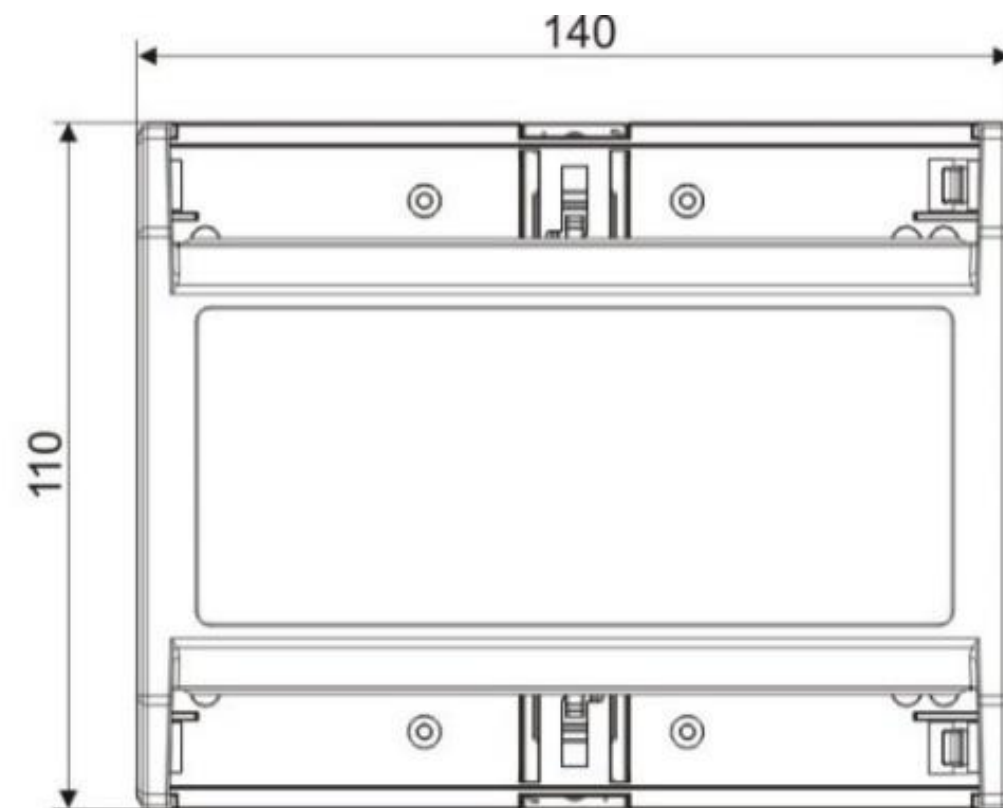
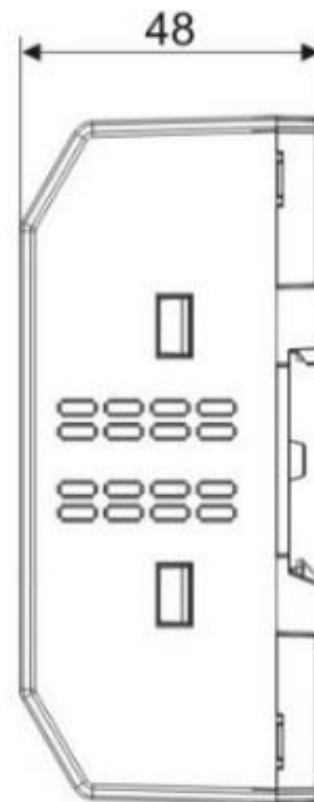
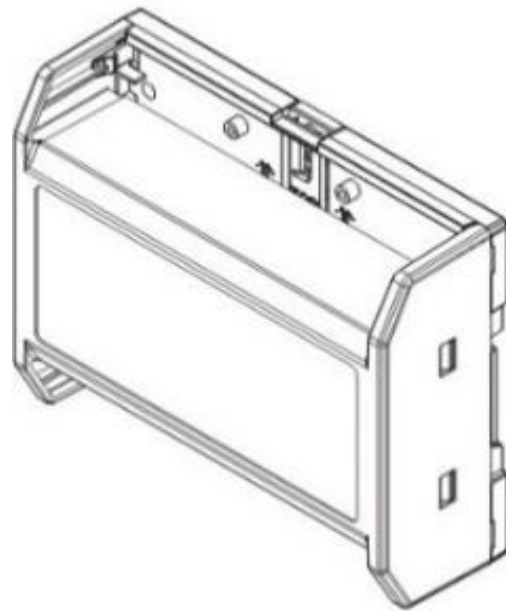
	XWi70K
Housing	Self-extinguishing PC+ABS
Mounting	DIN rail
Connections	Screw connectors, plug-in or faston
Power Supply	230Vac $\pm 10\%$, 50/60Hz; 110Vac $\pm 10\%$, 50/60Hz (according to the model)
Power consumption	10VA max
Analogue inputs	4 configurable probes
Digital inputs	2 x free voltage contact
Relay outputs (nominal ratings)	20+20+8+16+7A
Serial outputs	TTL 5-wire slave RS485 2-wire (optional, Modbus fan control) VSC master (optional)
Other outputs	2x 0-10Vdc or 4-20mA (optional)
RTC	Optional

XWi_K Series

Dimensions and Cut-Out

8 DIN format

DIN rail mounting



XWi_K Series

Compatible Keyboards

CH620

Compact keyboard with 6 keys



T620H & T820H

Horizontal membrane keyboard with 6 or 8 keys



T620T & T820T

Horizontal capacitive keyboard with 6 or 8 keys



V620H

Vertical membrane keyboard with 6 keys

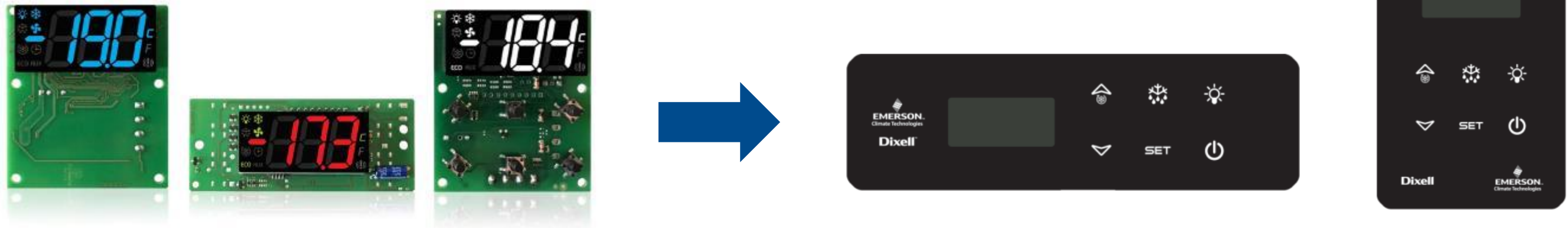


XWi_K Series

Compatible Keyboards

D60

Vertical or horizontal membrane keyboard or with mechanical keys



T620GT

Glass touch keyboard with 6 capacitive and backlight keys



XWi_K Series

Main Accessories

CAB/EM1

2m adapter cable for frequency control of Embraco compressors



CAB/SE1

2m adapter cable for frequency control of SECOP compressors



CONNECTORS KITS

KIT 1: connectors for a standard version

KIT 2: connectors for versions with analogue outputs

KIT 3: connectors for full versions



XJ485USB-KIT

USB to RS485 serial (2-wire) converter for monitoring a single or multiple controller connected via the network to a computer with a USB port and with Wizmate® software installed

CAB/EM2 (2 versions)

1,5m adapter cable for serial control of an Embraco compressor

2m adapter cable for serial control of two Embraco compressors



CAB/SE2

1,5m adapter cable for frequency control of SECOP compressors

