

our experience...
...your solutions

XC

Compressor rack controllers

XC1000D

XC200L



dixell®



D: 10 DIN Rail

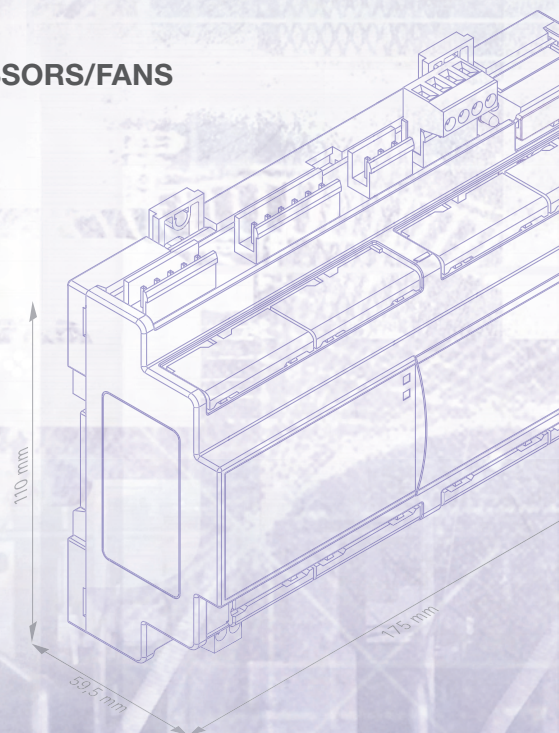


156x82mm

XC1000D

CONTROLLERS FOR COMPRESSOR RACK UP TO 15 COMPRESSORS/FANS

- up to: 8 probe inputs
- up to: 15 configurable relays
- up to: 23 configurable d.i.
- 2 analogue outputs for frequency compressors
- 2 analogue outputs for inverter for fans
- proportional band or dead band control
- temperature and pressure display depending on the gas (Freon, NH₃, CO₂, ...)
- reduced set point for energy saving management
- hourly run time signals for maintenance
- dynamic set point for energy saving
- sub-cooling management
- standard communication protocol ModBUS-RTU
- Hot key or Prog tool kit connector for a quick and easy programming



KINDS OF COMPRESSORS

XC1000D models can manage different compressor types:

- scroll
- semi-hermetic
- multi stages
- different power
- screw (coming soon)

VGC810 - VISOGRAPH



VISOgraph



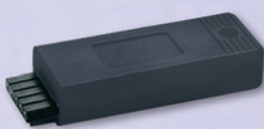
PROGRAMMABLE GRAPHIC DISPLAY

- LCD - 240x96 pixe
- complete and immediate information about the variables of the compressor rack
- user friendly interface
- great versatility and extensive customization opportunities
- buzzer (optional)
- up to 3 VGC's can be connected to one XC1000D

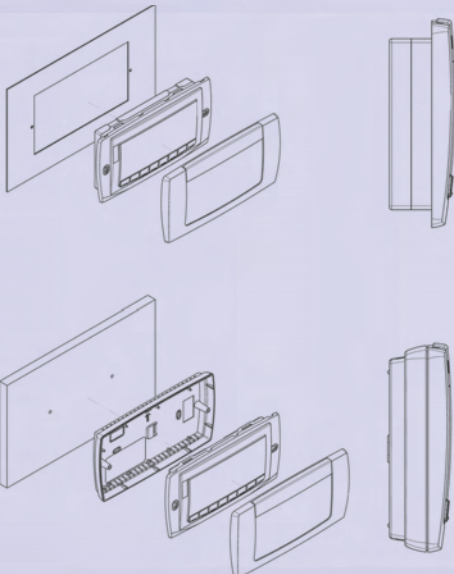


VISOKEY

The VGC810 can be easily programmed using the VISOKEY



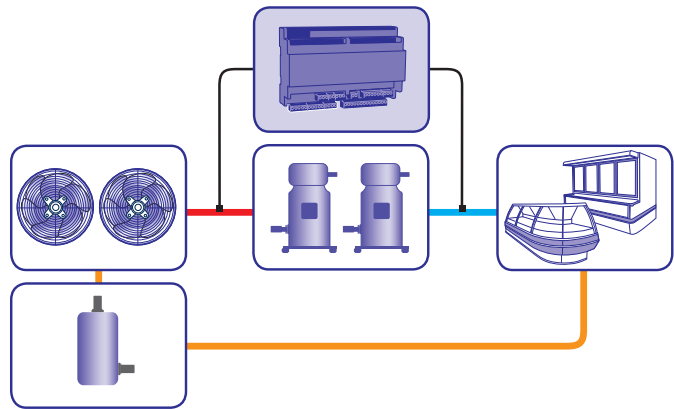
PANEL OR WALL MOUNTING



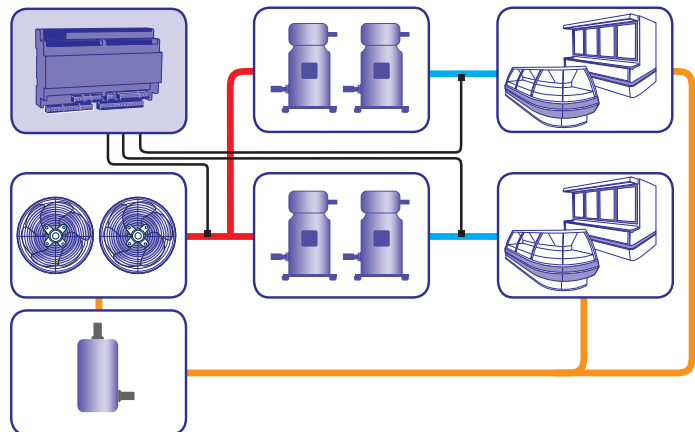
KINDS OF CIRCUIT

The XC1000D series is able to manage in the best possible way the majority of applications for refrigeration circuits. Here are some examples of different types of circuits.

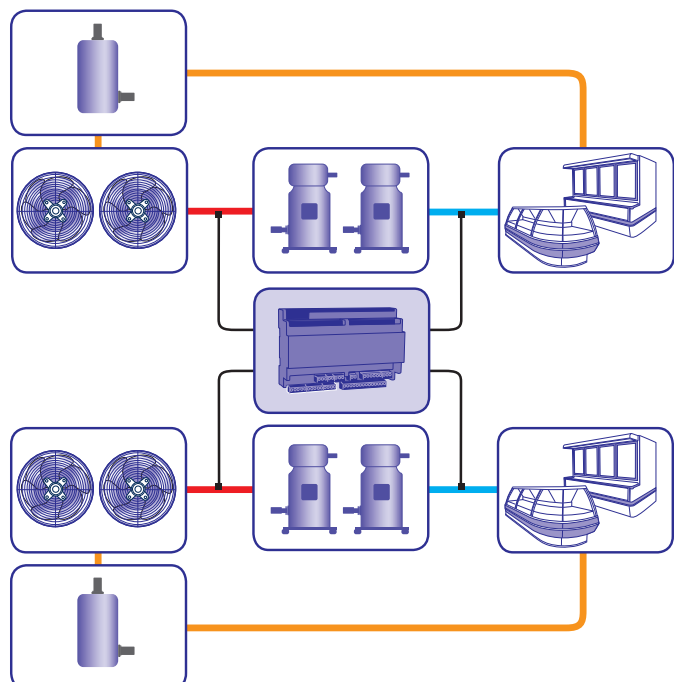
1 SUCTION CIRCUIT, 1 CONDENSATION CIRCUIT



2 SUCTION CIRCUITS, 1 CONDENSATION CIRCUIT



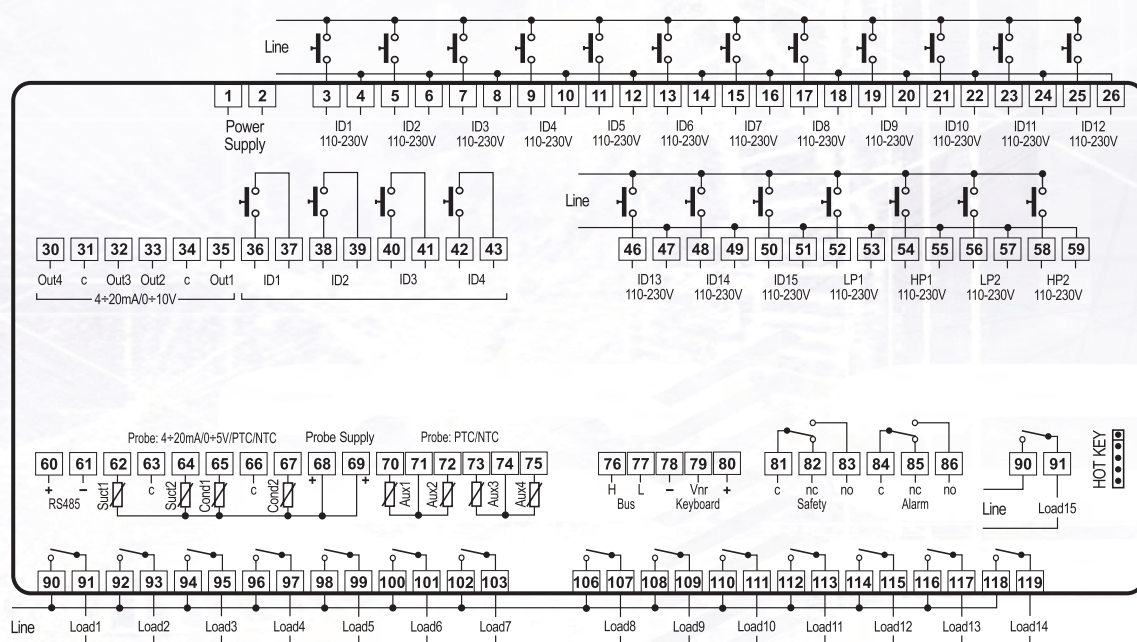
2 SUCTION CIRCUITS, 2 CONDENSATION CIRCUITS



FEATURES

	XC1008D	XC1011D	XC1015D
Power supply	24Vac/dc	24Vac/dc	24Vac/dc
Probe inputs			
Suction 1	4÷20mA/0÷5V/PTC/NTC	4÷20mA/0÷5V/PTC/NTC	4÷20mA/0÷5V/PTC/NTC
Suction 2		4÷20mA/0÷5V/PTC/NTC	4÷20mA/0÷5V/PTC/NTC
Condensing 1	4÷20mA/0÷5V/PTC/NTC	4÷20mA/0÷5V/PTC/NTC	4÷20mA/0÷5V/PTC/NTC
Condensing 2		4÷20mA/0÷5V/PTC/NTC	4÷20mA/0÷5V/PTC/NTC
Auxiliary 1	PTC/NTC	PTC/NTC	PTC/NTC
Auxiliary 2	PTC/NTC	PTC/NTC	PTC/NTC
Auxiliary 3		PTC/NTC	PTC/NTC
Auxiliary 4		PTC/NTC	PTC/NTC
Digital inputs (main voltage)			
Low pressure switch 1	pres	pres	pres
Low pressure switch 2		pres	pres
High pressure switch 1	pres	pres	pres
High pressure switch 2		pres	pres
Safety loads	8	11	15
Digital inputs (line voltage)			
N° 4	config	config	config
Relay outputs			
Loads	8x7A config	11x7A config	15x7A config
Alarms	2x8A	2x8A	2x8A
Analog outputs			
For frequency compressor	4÷20mA/0÷10V opt	2x4÷20mA/0÷10V opt	2x4÷20mA/0÷10V opt
For inverter for fan	4÷20mA/0÷10V opt	2x4÷20mA/0÷10V opt	2x4÷20mA/0÷10V opt
Other			
Hot Key / Prog Tool Kit output	pres	pres	pres
Visograph output	VGC810	VGC810	VGC810
Serial output	RS485	RS485	RS485
External module connections	LAN opt	LAN opt	LAN opt

WIRING CONNECTION



The following wiring connection of XC1015D model shows the maximum configuration for XC1000D series, you can check other wiring connections by visiting www.dixell.com.



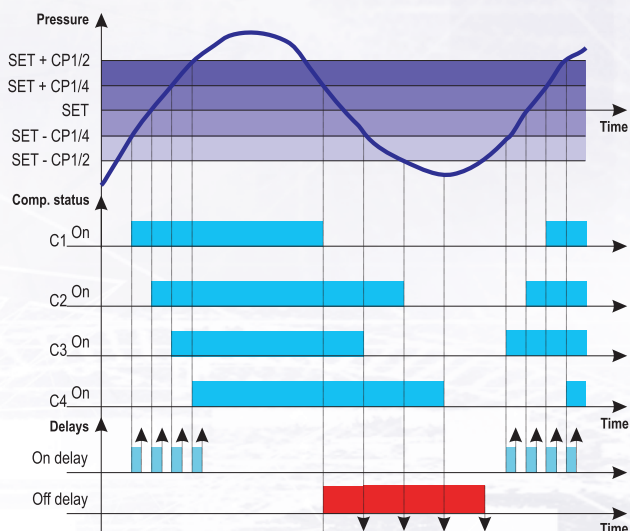
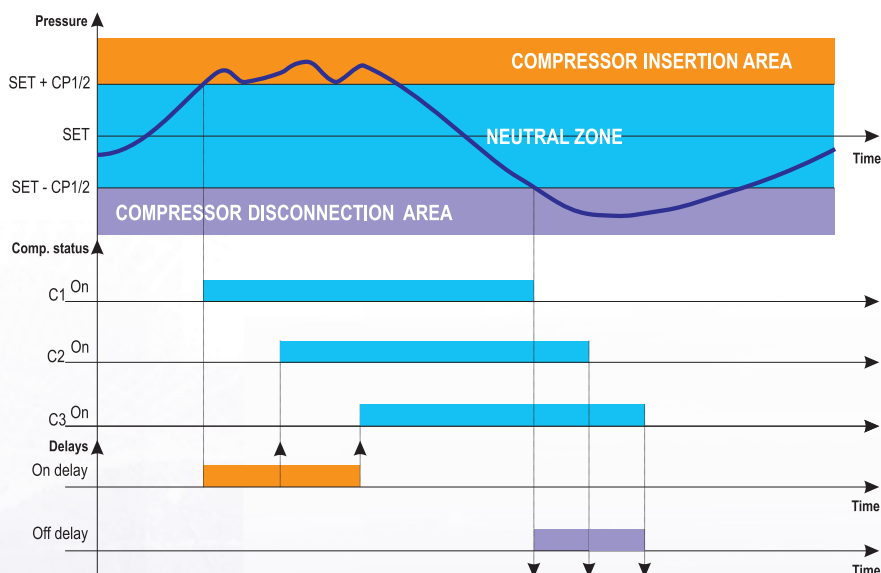
MAINTENANCE

The running hours of each load (compressor or fan) are recorded. A total number of running hours can be set, after which a "Maintenance Due" signal can be generated. Each individual load can be temporarily deactivated, allowing maintenance to be carried out while the rest of the system continues to work.

STANDARD REGULATION

NEUTRAL ZONE ADJUSTMENT

A pressure value (set-point) and a band that is symmetric compared with the set value can be programmed. Within this band a state of system equilibrium can exist, where the instrument will maintain the status of the outputs. If the pressure moves outside this band the switching on and off of available outputs begins, subject to delays set in the parameters "delay between two consecutive starts" and "delay between two consecutive stops", always respecting the protection times of each compressor. The graph illustrates, in a simplified way, neutral zone regulation with equal loads.



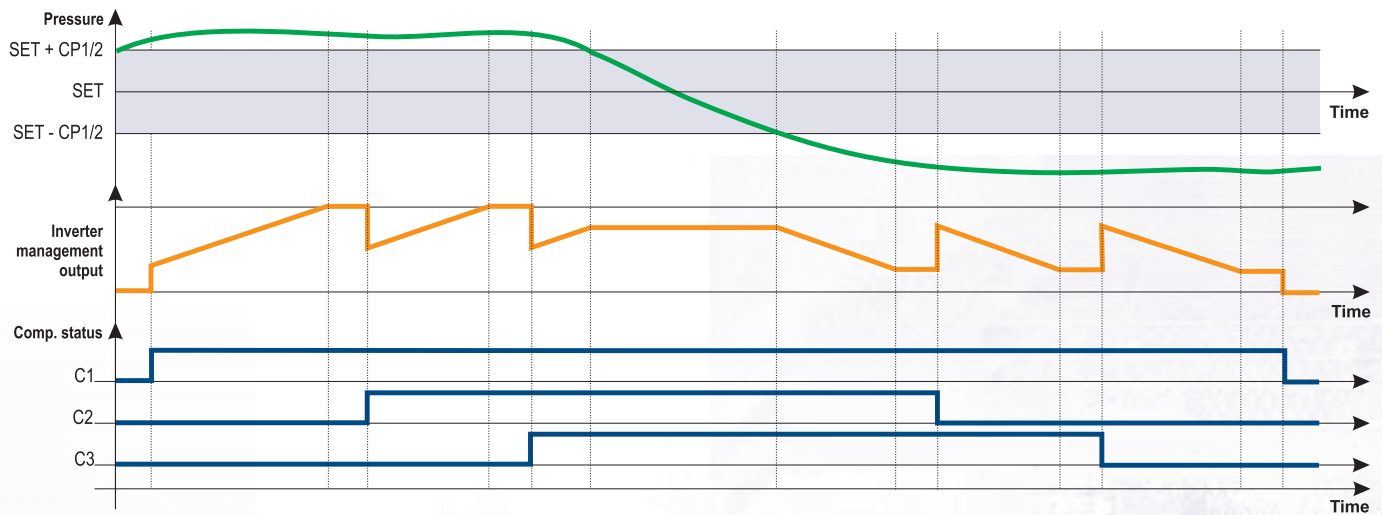
PROPORTIONAL BAND ADJUSTMENT

A pressure value is set (set point) and an adjustment band is positioned over the set point. The adjustment band is then divided into equal parts, one for each stage being controlled. As the pressure increases and passes the various stages, the controller activates each load. As the pressure decreases, the loads are turned off. In this way, above the adjustment band all the compressors will be running, while below the band they will all be off. The switching on and off of the loads is carried out in such a way as to balance the running hours. The graph shows, in a simplified way, the adjustment algorithm with 4 equal loads.

ENERGY SAVING MANAGEMET

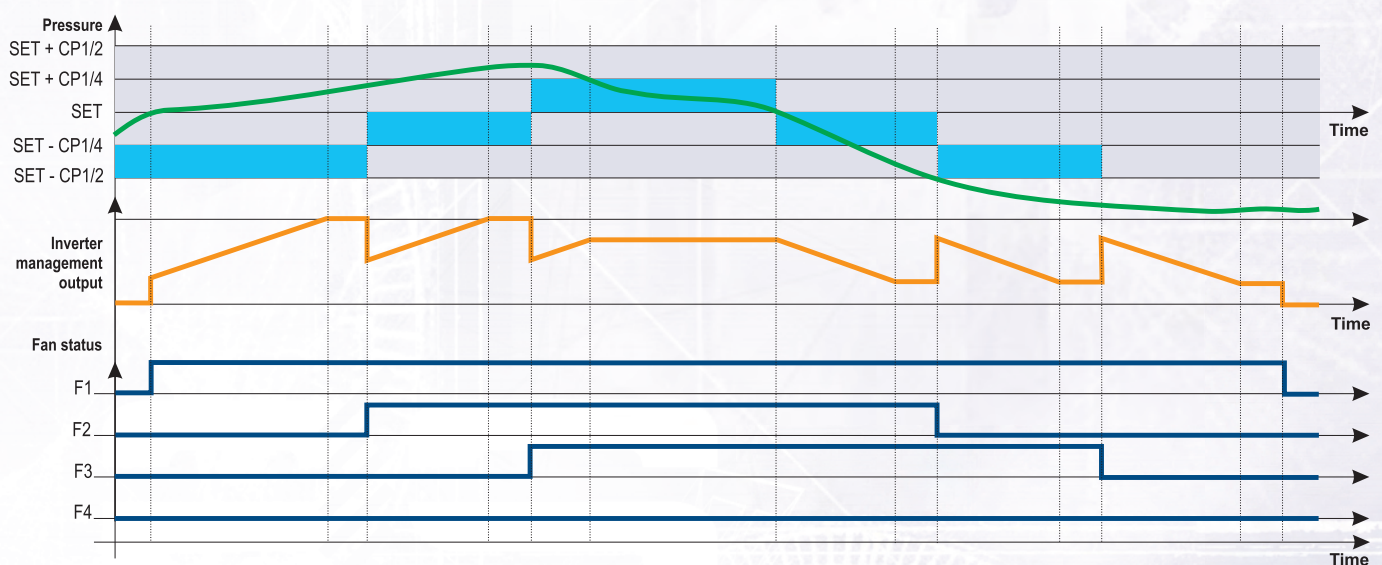
The new XC1000D series gives to the user several solutions that let you to manage energy savings, so important when we deal with "compressor management". The controllers have a special algorithm that lets you to optimize the efficiency of the plant, ensuing energy savings. The following are a range of the most important solutions that Dixell offers to customers to achieve energy savings.

COMPRESSORS WITH INVERTER



When the plant needs more power (when the temperature gets out of the band) the inverter compressor (C1) frequency increases. If this is not enough, the other compressors (C2, C3, ...) will be activated in sequence. At the same time the controller will modulate the inverter compressor frequency in order to have a uniform increase of the plant power.

FANS WITH INVERTER

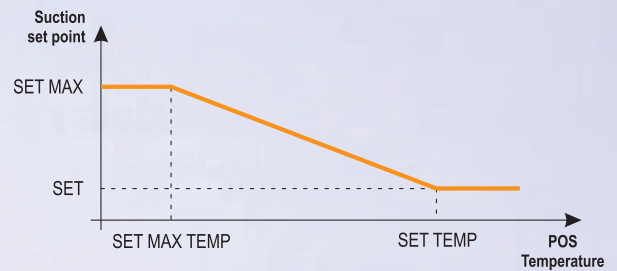


When the plant needs more power (when the temperature gets out of the band) the inverter fan (F1) frequency increases. If it is not enough, the other fans (F2, F3, ...) will be activated in sequence. At the same time the controller will modulate the inverter fan frequency in order to have a uniform increase of the plant power.

SUCTION DYNAMIC SET POINT

Suction temperature/pressure optimization can depend on retail space temperature.

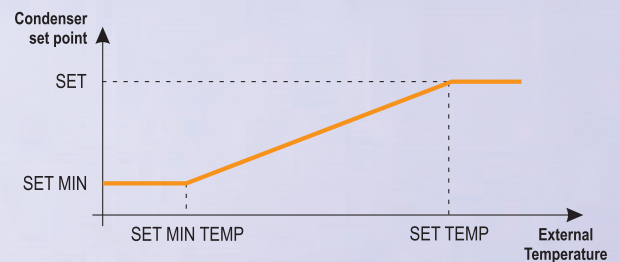
The dynamic set point guarantees excellent plant efficiency, considering the real operational conditions. The plant modifies the suction temperature/pressure according to the retail space temperature so the refrigeration power changes depending on the real thermodynamic exchange.



CONDENSER DYNAMIC SET POINT

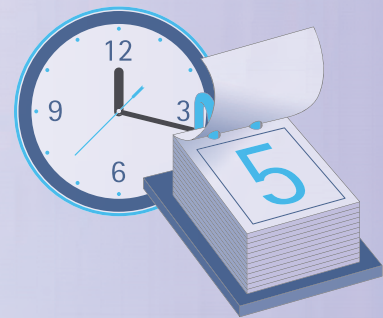
Condenser temperature/pressure optimization can depend on the external temperature.

The condenser temperature/pressure is modified according to the external temperature. The condensing set point is automatically adjusted according to the external temperature, to get an optimum condensing temperature.



REDUCED SET POINT

An internal 7 day clock can automatically change the adjustment's set point, depending on a particular system's individual requirements, to enter an energy saving cycle during nights and weekends, when less power is required. This energy saving cycle can also be initiated from an external source via a digital input.



SUPERVISION SET

The connection to the modern supervising systems (of Dixell) allows, thanks to the CRO special algorithm (Compressor Rack Optimization), to manage in the best way the compressor rack set point depending on the devices connected, with the result of having an optimized energy saving on the plant. The system, equipped with the CRO function, analyzes the information from the controller in the application to determine if a controller needs more refrigeration power and the quantity. The set point will be re-calculated in order to satisfy the worse instance and sent from the supervising system to the XC1000D; this will be the working set point (fig. 1). If the supervising system can't manage the XC1000D, is the controller that "decided" to replace the set point (coming from the system) and will then define the set point in the program phase.

The 2 graphs (fig. 2) emphasize that when the CRO algorithm is active, in a real installation, the set point becomes on average higher, and consequently the energy consumption decreases. The dotted line represents the average weekly value.

fig. 1

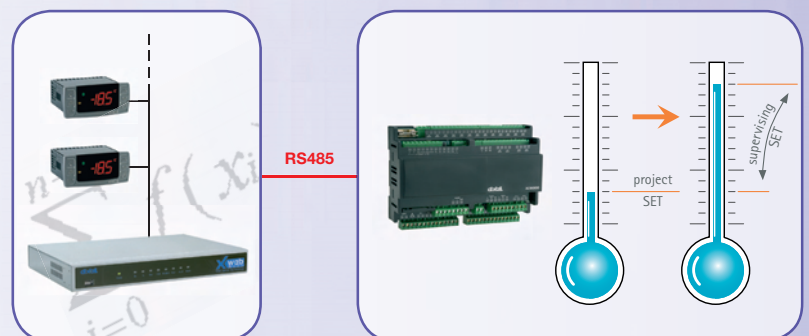
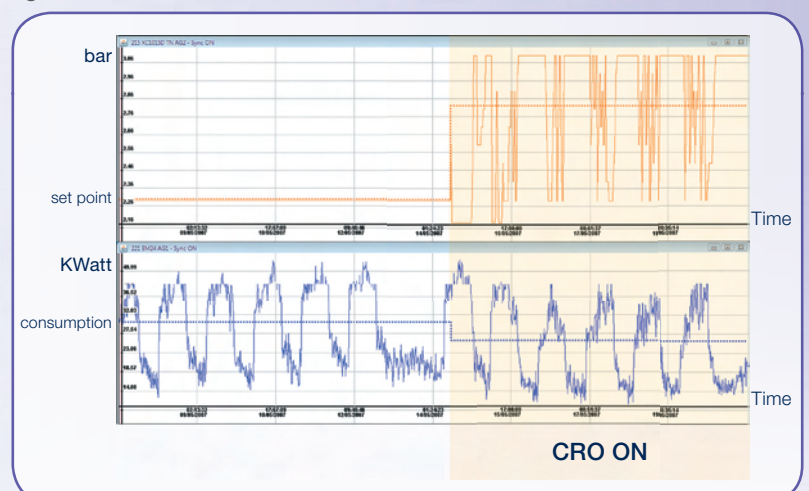


fig. 2



L: 38x185mm



XC200L

CONTROLLERS FOR INDUSTRIAL APPLICATION COMPRESSOR RACK

- up to 6 compressor and 4 fan management
- 1 compressor up to 4 capacity step management
- control of condensation fan speed using a 4÷20mA or 0÷10V or PWM command
- pump-down function (start and stop)
- single compressor stand-by through key
- alarm data logger (up to 100 events)
- energy saving & ON/OFF by RTC or digital input
- timed start and stop through RTC
- temperature/pressure thermoregulation
- thermoregulation of the compressors (time running hours or number of start-up per hour)
- auxiliary relays
- remote OFF
- standard communication protocol ModBUS-RTU
- Hot key 64 or Prog tool kit connector for a quick and easy programming

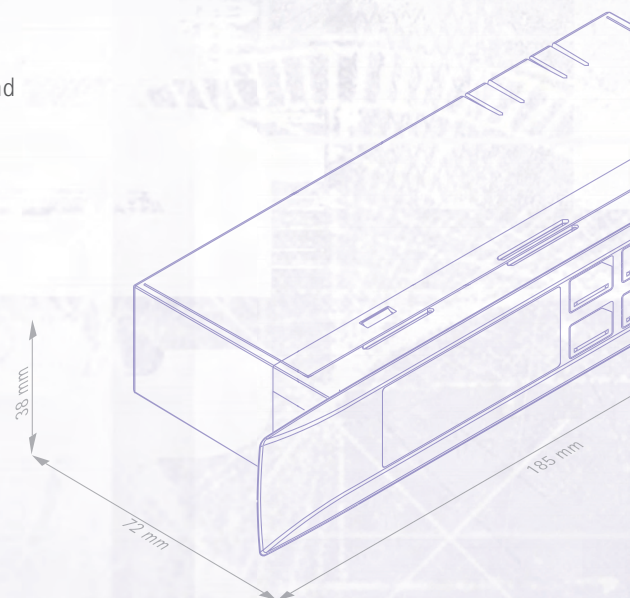
KINDS OF COMPRESSORS

XC200L models can manage different compressor types:

- scroll
- semi-hermetic
- multi stages
- different power
- screw

COMPLETE

The dual display and the icons shows complete information about the status of the machine. Without the need to enter into the programming mode, all the main functioning of the cooling system are displayed with only one key touch.





VI620

Up to two remote keyboards can be remotely connected up to 150m. The VI620 can be mounted on panel (72x56mm cut-out) or on wall by a standard commercial box or by V-KIT.

To connect the keyboard to controller use the CAB/CJ15 and CAB/CJ30 connectors. The VI620 the buzzer is optional.

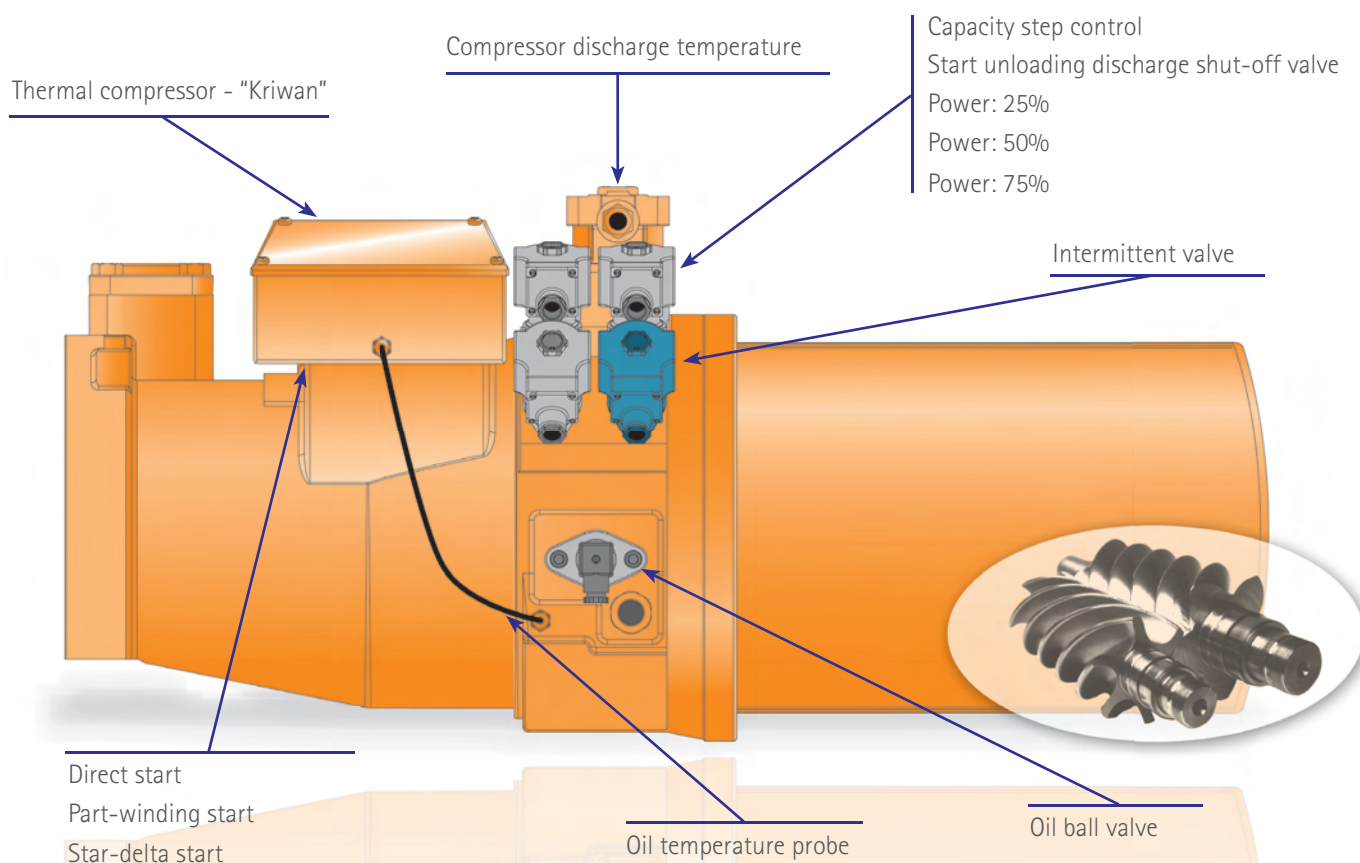
V: 100x64mm

V-KIT SOLUTION



SCREW COMPRESSOR MANAGEMENT

Thanks to its high flexibility the XC200L can manage in the best way all the variables for a screw compressor as shown in the pictures below.



In addition:

- thermal compressor alarm management also with unit in stand-by
- cooling liquid injection with PTC probe
- high temperature alarm of the compressor discharge side with PTC probe
- oil alarm management from pressure switch or ball valve also with unit in stand-by

PROGRAMMING

All the instruments can easily be programmed by means of the Hot Key (Hot Key 64 for XC200L) or by connection to a PC via PROG TOOL KIT.



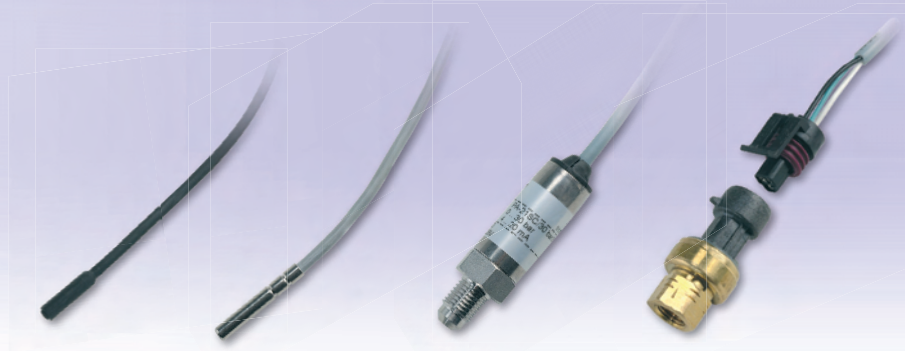
COMMUNICATION

The instruments have a serial output with standard communication protocol ModBUS-RTU for connection to Dixell controlling and supervising systems.



PROBES

To the XC1000D and XC200L series controllers can be connected using Dixell's probes: NTC, PTC temperature probes and pressure transducers 4÷20mA (PP) or 0÷5V (PPR) present on our catalogue.



XC1000D - XC200L <<<<<

XC: a complete range of solutions

XC700/800/900



XC400/600



In addition to XC1000D and XC200L Series, Dixell proposes the consolidated XC400/600 and XC700/800/900 series for applications up to 6 and 11 compressor/fan output. For further information check out www.dixell.com.

XC <<<<<

POLART - WARM IDEAS

release 1.0 - 1582001500-GB

our experience...
...your solutions

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