



Automatic control systems



Control Panel

- Multilingual **clear-language** text messages
- Management of operating and safety settings
- Communication with a **BMS** over a **BUS** network

The automatic control system **CONNECT** fitted on the standard versions of chillers, heat pumps, water or air cooled condensing units with one or two refrigerant circuits equipped with scroll compressors.

The automatic control system **Xtra CONNECT** fitted on the standard on air-cooled and water-cooled water chillers with up to three refrigerant circuits equipped with screw compressors.

CONNECT

STRUCTURE

- Multilanguage backlit LCD with status LEDs.
- Control Mainboard
- Control and display panel fitted on unit.
- Electric additional heater control board.
- Remote control panel (optional).
- Relay board with voltage-free contacts (optional).

CONTROLS

- Chilled water or hot water temperature control.
- Actions on compressor stages or additional heater.
- Choice of 2 heating and cooling setpoint values.
- Heating and cooling setpoint drift according to outside temperature.
- Control of condensation pressure for air-cooled units.
- Defrosting control for air-cooled reversible units.
- Frost protection control.

OPERATION MANAGEMENT

- Compressors :
 - Optimised anti-short cycle.
 - Operating time balance.
 - Separate heating and cooling operating time counters.
 - Cascade control.

Xtra CONNECT

STRUCTURE

- Multilanguage backlit LCD with status LEDs.
- Control Mainboard
- Control and display panel mounted on unit.
- Remote control panel (optional).
- Relay board with voltage-free contacts (optional).

CONTROLS

- Chilled water temperature control.
- Actions on compressor slides.
- Choice of 2 setpoint values.
- Setpoint drift according to outside temperature.
- Control of condensation pressure for air-cooled units.
- Frost protection control.

OPERATION MANAGEMENT

- Compressors :
 - Optimised anti-short cycle.
 - Operating time balance.
 - Operating time counters.
 - Capacity adjustment via modulating control.
 - Part winding starting.



CONNECT

- Faults:
 - Individual diagnosis of each fault with memorised operation statement.
 - Temperature probe control.
 - Control of high and low pressure refrigerant circuits, oil, discharge temperature.
 - Compressor and fan motor overloading.
 - Chilled water circulation.
 - Freezing limit.

SERVO CONTROLS AND EXTERNAL CONTROLS

- On/off inputs:
 - Automatic unit on/off control.
 - Confirmation of heating/cooling.
 - Choice between two setpoints.
 - Preset compressor operation or compressor power cut-off.
- On/off outputs:
 - Pump control.
 - General fault.
- Communicates with a BMS via an RS 485 connection:
 - Open Modbus/Jbus protocol (standard).
 - LonWorks protocol (option).
- Optional:
 - Remote control board.
 - Relay board with voltage-free contacts.

THE DISPLAY BOARD

- Is used to:
 - Configure the unit.
 - Make settings.
 - Select the heating or cooling operating mode.
 - Select the setpoint.
 - Start up and shut down the unit.
 - Acknowledge faults.
 - Check the operating status.
 - Read the values.
- Displays the operation of:
 - Compressor stages.
 - Electrical additional heater stages.
- Displays in yellow:
 - Power on.
 - Unit operation authorisation.
 - Heating or cooling operating mode.
 - Choice of setpoint.
- Displays in red:
 - General fault.
 - Fault of each circuit.
- Displays in clear text:
 - Value of measures, setpoints, parameters and counters.
 - Unit status.
 - Operation statement.
 - Faults.

Xtra CONNECT

- Faults:
 - Individual diagnosis of each fault with memorised operation statement.
 - Temperature probe control.
 - Monitoring of high and low pressures refrigerant circuits, oil, discharge temperature.
 - Compressor and fan motor overloading.
 - Chilled water circulation.
 - Freezing limit.
- Weekly programming
 - 6, no programs.
 - 6 public holiday zones.

SERVO CONTROLS AND EXTERNAL CONTROLS

- On/off inputs:
 - Automatic unit on/off control.
 - Choice between two setpoints.
 - Forced operation or load shedding of compressors.
 - Emergency stop.
 - External security.
- Analog inputs:
 - remote setting modification (0-20mA).
- On/off outputs:
 - Pump control.
 - General fault.
 - Each circuit fault.
- Communicates with a BMS via an RS 485 connection:
 - Open Modbus/Jbus protocol (standard).
 - LonWorks protocol (option).
- Optional:
 - Remote-control board with voltage-free contacts.
 - Relay board.

THE DISPLAY BOARD

- Is used to:
 - Configure the unit.
 - Make settings.
 - Select the setpoint.
 - Start up and shut down the unit.
 - Acknowledge faults.
 - Check the operating status.
 - Read the values.
- Displays the operation of:
 - Compressors.
- Displays in yellow:
 - Power on.
 - Unit operation authorisation.
 - Heating or cooling operating mode.
 - Choice of setpoint.
- Displays in red:
 - General fault.
 - Fault of each circuit.
- Displays in clear text:
 - Value of measures, setpoints, parameters and counters.
 - Unit status.
 - Operation statement.
 - Faults.



CONNECT - Xtra CONNECT CONTROL SYSTEM



CONNECT -Xtra CONNECT

ERGONOMIC INTERFACE PANEL

- LCD multilingual screen (2 lines of 20 characters)
- Pressures and temperatures reading
- Pump control
- Communication

Voltage-free contacts available:

- Inputs:
- External ON/OFF contact
 - 1/2 setpoint selection
 - Cooling/heating selection
 - Compressors load shedding

- Outputs:
- General fault display
 - Pump control.

RS 485 OUTPUT AS STANDARD

- Open Modbus/Jbus protocol (standard)**
- LonWorks protocol (option)**

RELAY BOARD (OPTIONAL)

Available outputs:

- Water flow fault
- Anti-freeze fault
- Pump fault
- Fans fault
- Low and high pressure fault
- Compressors safety fault
- Discharge temperature fault
- Compressors running status

REMOTE CONTROL BOX (OPTIONAL)

- Functions and design identical to the interface panel**

MULTIGROUP MULTICONNECT MANAGEMENT (OPTIONAL)

Main available functions:

- Management of up to 8 units on the same water loop
- Cooling (water chiller) or heating (heat pump) mode management
- Management of chilled water or hot water pumps
- Management of emergency unit
- Unit load shedding
- Time programming of the installation
- Management of ice storage mode
- Faults management of each unit
- Balancing of running times for each unit
- Integrated MODBUS BMS connection allowing to get running and faults status for each unit