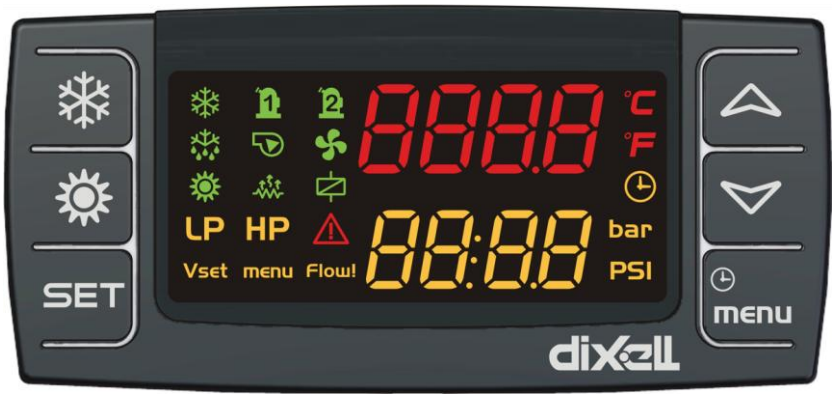
User manual



Hydronic groups with scroll compressors

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1.1 Advanced electronics

The new parametric Dixell logic controller, born from Thermocold and Dixell collaboration, a company geared to the development of new technologies in the world of heat regulation.
The controller is provided with six buttons for interacting with all its functions, ensuring maximum interaction with the thermal machine.

1.2 Display description

Controller display is provided with two command lines for the exchange of useful information on the operation and interaction with the operating parameters of the machine, as well as numerous icons.
Available information on display:

- **Main display (red):** visualization inlet water temperature;
- **Auxiliary display (yellow):** visualization condensing pressure;

Pressing the set button, the display shows the set of the chiller mode when the unit is on to chiller, the set of heat pump mode when the unit is on to heat pump, off with unit in standby.

For condensing units the display shows OnC when the unit is on to chiller, and ONH when the unit is on to heat pump, OFF with unit in standby.
Icons display description:

	On when the lower display shows the current time, hours of working loads, etc..

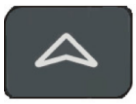
	Blinking in case of alarm
Vset	On if it is enabled an editing automatic function of the set point, (dynamic set point, function for machines without accumulation, Energy Saving). If the function is enabled but not active, icon is off
menu	Lights while accessing the functions menu
	On if the heaters are turned on (antifreeze, water heater)
	Flashing when the count of the interval between defrosts is on. Icon is alight during the defrosting phase
Flow!	Flashing when the flow switch digital input is activated (either with pump ON that with pump OFF)
	On if at least one of the 2 water pumps (evaporator pump or condenser pump) is on
	On if fans are turned on
	On if the compressor is turned on, and will flash if the compressor is in the ignition timing
	On if the open collector output is enable
	On if the machine is turned on, and this icon represents its operating status: Heat Pump (Snowflake); Cool (sun)

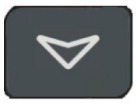
LP HP	The icons LP and HP are flashing if high or low pressure alarm are active
°C -°F	Lit when the display shows a temperature
bar-PSI	Lit when the display shows a pressure

1.2.1 Buttons description and their functions

The controller is provided with six buttons to interact with user and installer parameters.

Following the function and operations description that are accessible through the buttons.

SET	**Press and release in the main display:** It allows you to visualize the chiller (label SETC) or heat pump (label SetH) set point
	Press and release 2 times in the main display: If the energy saving or dynamic set point is enabled for machines without storage, the icon Vset is lit and the display shows the work real set
	Press for 3 seconds and release in the main display: It allows you to edit the chiller / heat pump set point
	Press and release in the ALrM menu: It allows you to reset the alarm (if this alarm can be reset) from the menu ALrM
	**Press and release:** from the main display it allows you to show the values of the configured probes (temperature / pressure) in the upper display, and the corresponding label in the lower display.
	Press and release in the PrG menu: it allows to slide in the parameters folders (ST, CT, etc.) and in the parameters list. In parameter editing phase, it increases the value.

	**Press and release:** from the main display it allows you to show the values of the configured probes (temperature / pressure) in the upper display, and the corresponding label in the lower display.
	Press and release in the PrG menu: it allows to slide in the parameters folders (ST, CT, etc.) and in the parameters list. In parameter editing phase, it increases the value.
	**Press and release:** It provides access to menu functions
	Press for 3 seconds and release: it allows you to adjust the watch in the provided models.
	Press and release in the PrG menu: it quits the parameter change.
	**Press and release:** it allows you to switch on the machine on heat pump or select standby mode
	**Press and release:** it allows you to switch on the machine on chiller or select standby mode

Some controller functions are available through the multiple keys simultaneous pressure; following are the combinations accepted by the controller.

	**Simultaneous pressure of buttons for 3 seconds:** it allows to access to parameters programming
	**Simultaneous pressure of buttons:** 1. it allows to quit from parameters programming 2. the simultaneous extended pressure of the buttons active the manual defrost

2.1 Power On/Off unit

WARNING: Supply power to the unit at least 8 hours before the startup, penalty the annulment of the warranty.

Pressing  or  for about three seconds it can switch on the machine in chiller or heat pump mode. During these 3 seconds, the selected mode led flashes.

To change machine mode, for example to pass from chiller to heat pump mode, it must passing to the standby mode before.

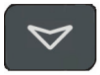
If the controller is on, the extended pressure on the button of the current mode (chiller or heat pump) forces the machine on standby.

In standby mode, you can still to enter in menu to change the parameters.

Alarm management is enabled also in standby mode; alarms that occur are equally shown.

3 Alarm display

Enter to the function menu:

1. Select **"ALrM"** function using  or  ;
2. Press and release  **;**
3. The pressure on  or  allows to show active alarms.

Press the Menu key or wait the timeout, to exit to this visualization.

3.1 Alarm reset

1. Enter to the function menu;
2. Select the function **"ALrM"**;
3. Press  ; lower display shows the alarm while the upper display shows the label **rSt** if the alarm is resettable, or **NO** if it isn't. Using  or  you can slide and show all active alarms**;**
4. Press  on the label **rSt** to reset alarm and pass to the next;
5. Press the Menu key or wait the timeout, to exit to this visualization.

4 Set point display

Pressing and releasing the SET button, it can see the setpoint value, **SetC** (set chiller) if the machine is on the chiller mode, or **SetH** (set heat pump) if the machine is on the heat pump mode.

Pressing and releasing the SET button when the machine is on the standby mode, it is possible to display both set points.

4.1 Set point edit

1. Press the SET key at least for 3 sec;
2. The set point will display blinking;
3. To modify set point value, press ▲ and ▼ ;
4. Press the SET key, or wait the timeout to save the new value and to quit from programming;

5 Configuration parameters

Controller parameters grouped in functional folders (**CF** = configuration, **CO** = compressor,…) with a specific label each.
The generic group **ALL** contain all controller parameters.

5.1 User level parameters (Pr1) edit

How to enter in "**Pr1**":

1. Press SET and ▼ for some seconds;

2. Icons flash and upper display shows "**ALL**" (generic parameters group);

3. Slide the parameters groups using  and  ;

4. Select the group that contains parameters to edit. Pressing the set button, you can enter in the parameters list of that group.
   Lower display shows parameter label and the upper its value.

5.2 Parameters value edit

1. Enter in the parameters menu;

2. Select parameter;

3. Press the  key to eneble the edit;

4. You can edit the value using  or  ;

5. Press the  button to save the new value and to move to the next;

6. To exit, press the  key, when you are in parameters viewing (not during the change with blinking value), or wait the timeout.

NOTE:

The new value is saved also, when you quit because of timeout without pressing the  button.

WARNING:

you can change the CF (configuration parameters) group parameters values, when the machine is on standby mode or on remote OFF, only.

You cannot change dF parameters if the unit is on defrost mode.

5.4 Parameters table

The parameters are grouped by macro-groups, as follows:

ST	Thermoregulation parameters
CF	Configuration parameters
SD	Dynamic set point parameters
ES	Energy Saving parameters

Thermoregulation					
Parameter	Description	min	max	mu	Risolution
ST01	**Summer Set point**	ST05	ST06	°C/°F	dec/int
ST02	**Summer differential**	0.0 0	25.0 45	°C °F	Dec int
ST03	**Winter Set point**	ST07	ST08	°C/°F	dec/int
ST04	**Winter differential**	0.0 0	25.0 45	°C °F	Dec int
ST05	**Summer min Set**	-50.0 -58	ST01	°C °F	Dec int
ST06	**Summer max Set**	ST01	110 230	°C °F	Dec int
ST07	**Winter min Set**	-50.0 -58	ST03	°C °F	Dec int
ST08	**Winter max Set**	ST03	110 230	°C °F	Dec int
ST09	**Regulation band**	0.0 0	25.0 45	°C °F	Dec int
Dynamic set point					
Parameter	Description	min	max	mu	Risolution
Sd01	**Dynamic set point** **0= Not enable** **1= enable**	0	1		
Sd02	**Offset max summer d. setpoint**	-30.0 -54	30.0 54	°C °F	Dec int
Sd03	**Offsett max winter d. setpoint**	-30.0 -54	30.0 54	°C °F	Dec int

Sd04	**Set temp. External Air summer d. setpoint**	-50.0 -58	110 230	°C °F	Dec int
Sd05	**Set temp. External Air winter d. setpoint**	-50.0 -58	110 230	°C °F	Dec int
Sd06	**Differential temp. External Air summer d. setpoint**	-30.0 -54	30.0 54	°C °F	Dec int
Sd07	**Differential temp. External Air winter d. setpoint**	-30.0 -54	30.0 54	°C °F	Dec int
Energy Saving					
Parameter	Description	min	max	mu	Risolution
ES01	**Begin (0÷24)**	0	23.50	Min	10 min
ES02	**End (0÷24)**	0	23.50	Min	10 min
ES03	**Monday 0 = Not enable 1= Enable**	0	1		
ES04	**Tuesday 0 = Not enable 1= Enable**	0	1		
ES05	**Wednesday 0 = Not enable 1= Enable**	0	1		
ES06	**Thursday 0 = Not enable 1= Enable**	0	1		
ES07	**Friday 0 = Not enable 1= Enable**	0	1		
ES08	**Saturday 0 = Not enable 1= Enable**	0	1		
ES09	**Sunday 0 = Not enable 1= Enable**	0	1		
ES10	**Increase set energy saving chiller**	-30.0 -54	30.0 54	°C °F	Dec int
ES11	**Differential energy saving chiller**	0.1 0	25.0 45	°C °F	Dec int

ES12	**Increase set energy saving heat pump**	-30.0 -54	30.0 54	°C °F	Dec int
ES13	**Differential energy saving heat pump**	0.1 0	25.0 45	°C °F	Dec int

6 Alarms

The controller is able to identify all alarms that may damage the normal operation of the machine. For each alarm code, the controller performs a given action.

Below is a table with the alarm codes.

Cod	Description	Cause	Action	Reset
P1	**probe PB1 alarm** **Inlet water evaporator**	**faulty probe or resistive value out of range**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Automatic*** *If resistive value come back in correct range.*
P2	**probe PB2 alarm** **Outlet water evaporator**	**faulty probe or resistive value out of range**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Automatic*** *If resistive value come back in correct range.*
P3	**probe PB3 alarm** **Pressure transducer**	**faulty probe or resistive value/or current out of range**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Automatic*** *If resistive value come back in correct range.*
A01	**High pressure alarm**	**Digital input active high pressure switch**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	**Automatic** The alarm becomes manual after AL10 work hours ***Manual*** *Disabling digital input reset procedure more paragraph 15.4*

A02	**Low pressure alarm**	**Digital input active low pressure switch**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	**Automatic** The alarm becomes manual after AL02 work hours **Manual** Disabling digital input reset procedure more paragraph 15.4
A05	**High pressure alarm from transducer**	**Enable analog input** **PB3 > AL11**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	**Automatic** The alarm becomes manual after AL10 work hours ***Manual*** *Deactivation: PB3 or PB4 <(AL11 - AL12), more reset procedure paragraph 15.4*
A06	**Low pressure alarm from transducer**	**Enable analog input** **PB3 < AL14**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	**Automatic** The alarm becomes manual after AL16 work hours **Manual** Deactivation: PB3 or PB4 >(AL14 + AL15), more reset procedure paragraph 15.4

A07	**Antifreeze alarm**	**Activation analog input anti-freeze probe** **Pbr <AR03 for at least AR05 in chiller mode** **Pbr <Ar27 for at least AR05 in heat pump mode**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Automatic*** The alarm becomes manual after Ar06 work hours ***Manual*** *Deactivation: anti-freeze probe Pbr> (AR03 + AR04) in chiller mode more reset procedure paragraph 15.4; antifreeze probe Pbr> (AR27 + AR28) in heat pump mode more reset procedure paragraph 15.4*
A08	**Flow alarm evaporator**	**If CO11≠0:** **activated by digital input** **active for AL06, the alarm is bypassed for AL04 from power pump evaporator.** **If CO11=0:** **activated by digital input** **active for AL06.**	• **If CO11≠0** **Enable open collector output / alarm relay** **Enable buzzer** **Flow alarm icon flashing** **Code to display** • **If CO11=0** **Enable open collector output / alarm relay** **Enable buzzer** **Alarm icon flashing flow** **Code to display** **In stand-by or remote OFF, there is the only indication of correct operation of the switch (icon "Flow" active)**	***Automatic*** Alarm becomes manual if digital input is actived for AL05 Deactivation: Digital input not actives for AL07 ***Manual*** *Deactivation: Digital input not actives for AL07, more reset procedure paragraph 15.4*

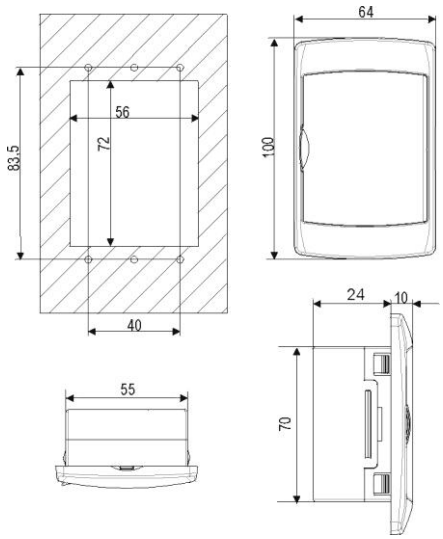
A09	**Alarm compressor 1**	**Digital input active; bypass for AL08 from power on compressor**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Manual*** *Deactivation: Digital input not actives more reset procedure point 15.4. After AL09 work hour, digital input is not active, more reset procedure paragraph 15.4*
A10	**Alarm compressor 2**	**Digital input active; bypass for AL08 from power on compressor**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Manual*** *Deactivation: Digital input not actives more reset procedure point 15.4. After AL09 work hour, digital input is not active, more reset procedure paragraph 15.4*
A11	**Alarm condensing fan**	**Digital input active**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Manual*** *Deactivation: Digital input not actives more reset procedure paragraph 15.4.*
A12	**Alarm defrosting error**	**End defrost dF07 (maximum time) with DF02 = 2**	**Code to display** **Alert only**	***Automatic*** *With a later correct defrosting cycle* ***Manual*** *Reset procedure paragraph 15.4.*
A13	**Maintenance alarm compressor 1**	**Operating hours > CO14**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Manual*** *Reset operating hours paragraph 16.6.*

A14	**Maintenance alarm compressor 2**	**Operating hours > CO15**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Manual*** *Reset operating hours paragraph 16.6.*
A15	**Maintenance alarm water pump**	**Operating hours > CO16**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Manual*** *Reset operating hours paragraph 16.6.*
A16	**Alarm high inlet water temperature system**	**Activation by analog input * PB3, PB4, PB1, PB2, if control probe alarm> AL24 after AL26 from power on compressor**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Automatic*** If the control probe alarm <(AL 24 - AL 25) The unit is OFF or std-by becomes manual after AL27 work hours ***Manual*** *Deactivation: control probe alarm <(AL24 - AL25), more reset procedure paragraph 15.4.*
A17	**Alarm water pump evaporator**	**Digital input active**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Manual*** *Deactivation: reset procedure paragraph 15.4.*

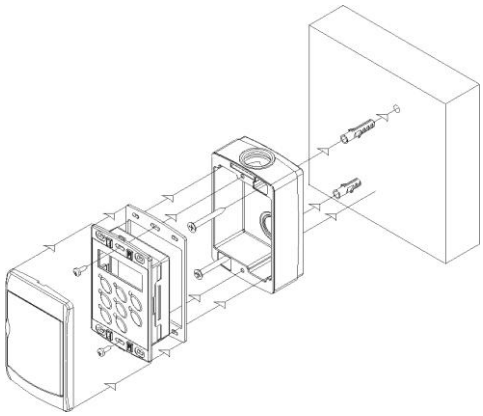
rtC	**Alarm timer**	**Timer must be regulated**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Manual*** *Setting the clock, more reset procedure paragraph 15.4*
rtF	**Alarm timer**	**Timer fault** **Timer malfunction**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Manual*** *Reset procedure paragraph 15.4. If after resetting the alarm persists, replace the clock*
EE	**Alarm error EEPROM**	**Loss of data in memory**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Manual*** *Reset procedure paragraph 15.4. If after resetting the alarm persists, the device is locked*
ACF1	**Configuration alarm**	**Unit configured as a heat pump with reversing valve not configured**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Automatic*** *With correct reprogramming*
Ferr	**Operating alarm**	**CF04= 3 and CF05 = 3, with digital inputs simultaneously active**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Manual*** *Digital input not actives more reset procedure paragraph 15.4.*

Afr	**Line frequency alarm**	**Line frequency out of range**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Automatic*** *Frequency comes back in the working range*
ALOC	**Generic alarm lock machine**	**Digital input active for continuous time> AL21.** **Alarm enabled if AL23 = 1 only**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Automatic*** The alarm becomes manual after AL20 work hours ***Manual*** *Deactivation: Digital input not active for continuous time> AL 22, more reset procedure paragraph 15.4*
bLOC	**Generic alarm, only warning**	**Digital input active for continuous time> AL21.** **Alarm enabled if AL23 = 0 only**	**Enable open collector output / alarm relay** **Enable buzzer** **Generic alarm icon flashing** **Code to display**	***Automatic*** Alarm is resettable automatically and it does not depend on AL 20

7 Remote display



Remote display is mounted on panel, 72x56 mm hole, and fixed using screws. To obtain an IP65, use the frontal protection eraser mod. RGW-V (optional). For wall mounting an adapter is available for vertical keyboards V-KIT as shown.



The remote display is to be connected with the unit inside the electrical panel on the terminal "X" to the contact X9 and X10, as the wiring diagram.