XW360K
XW370K

1. GENERAL WARNING

1.1 PLEASE READ BEFORE USING THIS MANUAL

- This manual is part of the product and should be kept near the instrument for easy and quick reference.
- The instrument shall not be used for purposes different from those described hereunder. It cannot be used as a safety device.
- Check the application limits before proceeding.

1.2 SAFETY PRECAUTIONS

- Check the supply voltage is correct before connecting the instrument.
- Do not expose to water or moisture: use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent formation of condensation
- Warning: disconnect all electrical connections before any kind of maintenance.
- Fit the probe where it is not accessible by the End User. The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor or to "Dixell s.r.l." (see address) with a detailed description of the fault.
- Consider the maximum current which can be applied to each relay (see Technical Data).
- Ensure that the wires for probes, loads and the power supply are separated and far enough from each other, without crossing or intertwining.
- In case of applications in industrial environments, the use of mains filters (our mod. FT1) in parallel with inductive loads could be useful.

2. GENERAL DESCRIPTION

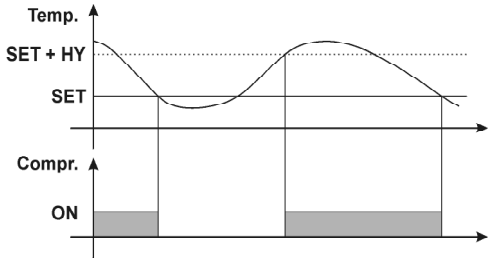
Controllers of XW300K series are refrigeration unit to be used for refrigerated trucks applications. Model **XW360K** is suitable for application with one low temperature cell that can be either low or normal temperature while **XW370K** is designed for application with two cells (1 low temperature and 1 normal temperature). When used in application with two cells, one of the outputs is dedicate to the opening of the shutter that's in between of the two cells and to activate a fan that allows the cold air to flow from the L.T. cell (-18°C) to the N.T. one (+2°C).
In the power module all relays and connections are present and by the keyboard (6 keys) is possible to control all functions and setting. The connection between power module and keyboard is made by two electrical wires that can be 30 meters long.

3. CONTROLLING LOADS

3.1 TYPE OF REGULATION

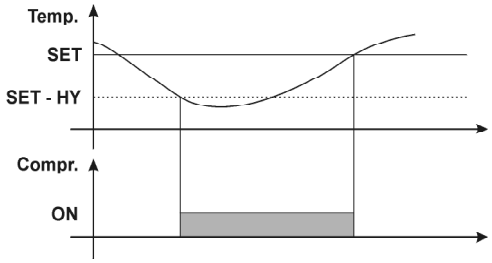
The regulation is performed according to the temperature measured by the probe.
The instruments are provided with the **CH** programmable parameter which enables the user to set the regulation both for heating or cooling applications:
CH = cL : cooling applications
CH = Ht : heating applications
CH = db : dead band (XW370K only)

3.2 CH=CL : COOLING



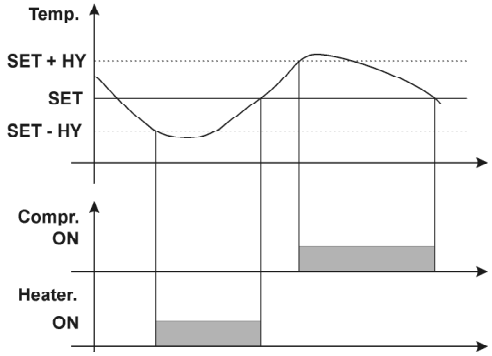
The regulation is performed according to the temperature measured by the thermostat probe with a positive differential from the set point: if the temperature increases and reaches set point plus differential the compressor is started and then turned off when the temperature reaches the set point value again.

3.3 CH = HT: HEATING



The Hy value is automatically set under the Set Point. If the temperature decreases and reaches set point minus differential the heater output is activated and then turned off when the temperature reaches the set point value again.

3.4 CH = DB: DEAD BAND (XW370K)



The temperature is maintained by mean of the interaction of the compressor (when the temperature is above set level) and heater (when the temperature is below set level) outputs

3.5 NORMAL TEMPERATURE CELL (XW370K)

When the NT cell probe is present, the temperature measured by it is used to control the temperature of a normal temperature cell by means of the opening of a shutter in between of this cell and the low temperature one.

3.6 DEFROST

Three defrost modes are available through the "**tdF**" parameter: defrost with electrical heater, hot gas or thermostatic defrost. The defrost interval is control by means of parameter "**EdF**": (EdF = in) the defrost is made every "**IdF**" time, (EdF = Sd) the interval "IdF" is calculate through Smart Defrost algorithm (only when the compressor is ON and the evaporator temperature is bigger than "SdF" parameter), (EdF = odd) this kind of defrost (on demand defrost) is operated by means of the calculation of a special algorithm that determine whether the evaporator is really packed by ice or not. To use this function the Auxiliary prove must be present (parameter P3P = Y).
The "**on demand defrost**" is operated when the temperature measured by a control probe (Auxiliary probe, that measures the temperature in output of the evaporator) is equal or below the temperature resulting by the difference of a "Reference temperature" and the value of parameter "**idH**".
The reference temperature is determined at the end of a previous defrost or at controller power on according to the setting of parameter "**idc**".
Before to start a on demand defrost, the fan have to be running at least for the time set in the "**iFt**" parameter.

At the end of defrost the drip time is controlled through the "**Fdt**" parameter.

3.7 CONTROL OF EVAPORATOR FANS

The fan control mode is selected by means of the "**FnC**" parameter:

C-n = running with the compressor, OFF during the defrost;
C-y = running with the compressor, ON during the defrost;
O-n = continuous mode, OFF during the defrost;
O-y = continuous mode, ON during the defrost;

An additional parameter "FSt" provides the setting of temperature, detected by the evaporator probe, above which the fans are always OFF. This can be used to make sure circulation of air only if his temperature is lower than set in "FSt".

4. KEYBOARD

To display and modify target set point; in programming mode it selects a parameter or confirm an operation.
By holding it pressed for 3s when max or min temperature is displayed it will be erased.
By pressing it for more than 10 seconds it switches controller working mode between Cooling and Heating

To see NT cell temperature value; in programming mode it browses the parameter codes or increases the displayed value. By holding it pressed for more than 3s the fast freezing cycle is started.

In programming mode it browses the parameter codes or decreases the displayed value.

By holding it pressed for 3s the defrost is started.

Switch ON and OFF the cold room light.

Switch ON and OFF the instrument.

KEY COMBINATIONS

To lock and unlock the keyboard.

To enter the programming mode.

To exit the programming mode.

4.1 USE OF LEDS

Each LED function is described in the following table.

LED	MODE	Function
❄	ON	The compressor is running
❄	FLASHING	- Programming Phase (flashing with LED 🌀) - Anti-short cycle delay enabled
🌀	ON	The fan is running
🌀	FLASHING	Programming Phase (flashing with LED ❄)
❄	ON	The defrost is enabled
❄	FLASHING	Drip time in progress
2°t	ON	NT cell temperature is displayed
≈	ON	Heater output ON
🔔	ON	- ALARM signal - In "Pr2" indicates that the parameter is also present in "Pr1"

Function of the LEDs placed on the left top side of buttons:

BUTTON	MODE	FUNCTION
SET	FLASHING	The Set point is displayed and can be modified
DEFROST	ON	The Manual Defrost is activated
LIGHT	ON	The Light is ON
ON/OFF	ON	The instrument is OFF

4.2 HOW TO SEE NT CELL TEMPERATURE

1. Press and release the ▲ key.
2. The NT cell temperature will be displayed (relevant LED on display will be on .
3. By pressing the ▲ key or waiting for 15s the normal display will be restored.

4.3 HOW TO SEE AND MODIFY THE SET POINT

1. Push and immediately release the **SET** key: the display will show the Set point value;
2. The SET LED start blinking;
3. To change the Set value push the ▲ or ▼ arrows within 10s.
4. To memorise the new set point value push the **SET** key again or wait 10s.

4.4 HOW TO SEE AND MODIFY NT CELL SET POINT (ONLY XW370K)

1. Push and immediately release the ▲ key to display NT probe value;
2. While displaying push SET button; NT cell Set point will be shown;
3. To change the value push the ▲ or ▼ arrows within 10s.
4. To memorise the new set point value push the **SET** key again or wait 10s.

4.5 TO START A MANUAL DEFROST

1. Push the **DEF** key for more than 3 seconds and a manual defrost will start.

4.6 TO ENTER IN PARAMETERS LIST "PR1"

To enter the parameter list "Pr1" (user accessible parameters) operate as follows:

1. Enter the Programming mode by pressing the Set and DOWN key for few seconds (🌀 and ❄ start blinking).
2. The instrument will show the first parameter present in "Pr1"

4.7 TO ENTER IN PARAMETERS LIST "PR2"

To access parameters in "**Pr2**":

1. Enter the "Pr1" level.
2. Select "Pr2" parameter and press the "**SET**" key.
3. The "PAS" flashing message is displayed, shortly followed by "0 - -" with a flashing zero.
4. Use ▲ or ▼ to input the security code in the flashing digit; confirm the figure by pressing "**SET**". The security code is "321".
5. If the security code is correct the access to "Pr2" is enabled by pressing "**SET**" on the last digit.

Another possibility is the following: after switching ON the instrument the user can push Set and DOWN keys within 30 seconds.

NOTE: each parameter in "Pr2" can be removed or put into "Pr1" (user level) by pressing **"SET" + ▼**. When a parameter is present in "Pr1" LED 🔔 is on.

4.8 HOW TO CHANGE THE PARAMETER VALUE

1. Enter the Programming mode.
2. Select the required parameter with ▲ or ▼.
3. Press the "**SET**" key to display its value (❄ and 🌀 LED starts blinking).
4. Use ▲ or ▼ to change its value.
5. Press "**SET**" to store the new value and move to the following parameter.

To exit: Press **SET + UP** or wait 15s without pressing a key.
NOTE: the new programming is stored even when the procedure is exited by waiting the time-out.

4.9 HOW TO LOCK THE KEYBOARD

1. Keep the ▲ and ▼ keys pressed together for more than 3 s the ▲ and ▼ keys.
2. The "POF" message will be displayed and the keyboard is locked. At this point it is only possible the viewing of the set point or the MAX o Min temperature stored and to switch ON and OFF the light, the auxiliary output and the instrument.

TO UNLOCK THE KEYBOARD

Keep the ▲ and ▼ keys pressed together for more than 3s.

4.10 ON/OFF FUNCTION

By pushing the **ON/OFF** key, the instrument shows "OFF" for 5 sec. and the ON/OFF LED is switched ON.
During the OFF status, all the relays are switched OFF and the regulations are stopped; if a monitoring system is connected, it does not record the instrument data and alarms.
N.B. During the OFF status the Light and AUX buttons are active.

4.11 TO SEE THE PROBE VALUES

1. Enter in "**Pr2**" level.
2. Select "**Prd**" parameter with ▲ or ▼.
3. Press the "**SET**" key to display "**Pb1"** label alternate with Pb1 value.
4. Use ▲ and ▼ keys to display the other probe values.
5. Press "**SET**" to move to the following parameter.

5. PARAMETER LIST

REGULATION

Hy **Differential:** (0,1÷25,5°C; 1÷45°F): Intervention differential for set point, always positive. Compressor Cut IN is Set Point Plus Differential (Hy). Compressor Cut OUT is when the temperature reaches the set point.
LS **Minimum set point limit:** (-50,0°C÷SET; -58°F÷SET) Sets the minimum acceptable value for the set point.
US **Maximum set point limit:** (SET÷110°C; SET÷230°F) Set the maximum acceptable value for set point.
Stb **Time base for SH parameter:** (Hou ÷ daY) Set the time base for SH parameter (hour or day).
SH **Maximum device on time:** (1 ÷200) Set the maximum device on time.
OdS **Outputs activation delay at start up:** (0÷255 min) This function is enabled at the initial start up of the instrument and inhibits any output activation for the period of time set in the parameter. (AUX and Light can work)
AC **Anti-short cycle delay:** (0÷30 min) interval between the compressor stop and the following restart.
CCt **Thermostat override:** (0min ÷23h 50min) allows to set the length of the continuous cycle. Can be used, for instance, when the room is filled with new products.
Con **Compressor ON time with faulty probe:** (0÷255 min) time during which the compressor is active in case of faulty thermostat probe. With COn=0 compressor is always OFF.
COF **Compressor OFF time with faulty probe:** (0÷255 min) time during which the compressor is off in case of faulty thermostat probe. With COF=0 compressor is always active.
CF **Working mode:** (CL, Ht, db) State controller's working mode: Cooling, heating or dead band

DISPLAY

CF **Temperature measurement unit:** °C = Celsius; °F = Fahrenheit . When the measurement unit is changed the SET point and the values of the regulation parameters have to be modified
rES **Resolution (for °C)**: (in = 1°C; de = 0,1°C) allows decimal point display.
de = 0,1°C
in = 1 °C

Lod Local display : select which probe is displayed by the remote
P1 = Thermostat probe
P2 = Evaporator probe
P3 = auxiliary probe
P4 = NT cell probe

DEFROST

tdF Defrost type:
rE = electrical heater (Compressor OFF)
rT = thermostat defrost. During the defrost time "MdF", the heater switches On and OFF depending on the evaporator temperature and "dtE" value.
in = hot gas (Compressor and defrost relays ON)

EdF Defrost mode:
in = interval mode. The defrost starts when the time "**Idf**" is expired.
Sd = Smartfrost mode. The time IdF (interval between defrosts) is increased only when the compressor is running (even non consecutively) and only if the evaporator temperature is less than the value in "**SdF**" (set point for SMARTFROST).
odd = on demand defrost.

SdF Set point for SMARTFROST: (-30÷30 °C/ -22÷86 °F) evaporator temperature which allows the IdF counting (interval between defrosts) in SMARTFROST mode.

dtE Defrost termination temperature: (-50,0÷110,0°C; -58÷230°F) (Enabled only when the evaporator probe is present) sets the temperature measured by the evaporator probe which causes the end of defrost.

dTb Time base for IdF parameter: (Min ÷Hou) time base for parameter IdF (Minutes or hour)

IdF Interval between defrosts: (1÷120h) Determines the time interval between the beginning of two defrost cycles.

MdF (Maximum) duration of defrost: (0÷255 min) When **P2P = n**, no evaporator probe, it sets the defrost duration, when **P2P = y**, defrost end based on temperature, it sets the maximum length for defrost.

Idc Reference temperature for on demand defrost acquiring: (1°r, 2°r, 3°r, 2A, 3A) state the acquiring mode of the reference temperature for on demand defrost:
1°r = Reference temperature is the minimum temp. measured during 1st compressor on cycle
2°r = Reference temperature is the minimum temp. measured during 2nd compressor on cycle
3°r = Reference temperature is the minimum temp. measured during 3rd compressor on cycle
2A = Reference temperature is the average between minimum temperature measured during 1st compressor on cycle and the one measured during the 2nd.
3A = Average between minimum temperature measured during 1st compressor cycle and the one measured during 2nd one is calculated and saved; then the minimum value of the 3rd cycle is measured. The reference temperature is an average between this value and the one previosly calculated.

IdH Differential for on demand defrost: (0,1 ÷ 25,5) differential used in on demand defrost algorithm calculation.

IFt Minimum fan on time for defrost: (0 ÷ 255) minimum on time for the fan before to start a Odd defrost.

dFd Display during defrost:
rt = real temperature;
it = temperature reading at the defrost start;
Set = set point;
dEF = "dEF" label;
dEG = "dEG" label;

dAd Defrost display time out: (0÷255 min) Sets the maximum time between the end of defrost and the restarting of the real room temperature display.

Fdt Drain down time: (0÷60 min.) time interval between reaching defrost termination temperature and the restoring of the control's normal operation. This time allows the evaporator to eliminate water drops that might have formed due to defrost.

dPO First defrost after start-up:
y = Immediately;
n = after the IdF time

dAF Defrost delay after fast freezing: (0min÷23h 50min) after a Fast Freezing cycle, the first defrost will be delayed for this time.

FANS

FnC Fan operating mode:
C-n = running with the compressor, OFF during the defrost;
C-y = running with the compressor, ON during the defrost;
O-n = continuous mode, OFF during the defrost;
O-y = continuous mode, ON during the defrost;

Fnd Fan delay after defrost: (0÷255 min) The time interval between the defrost end and evaporator fans start.

FSt Fan stop temperature: (-50÷110°C; -58÷230°F) setting of temperature, detected by evaporator probe, above which the fan is always OFF.

ALARMS

ALC Temperature alarm configuration
rE = High and Low alarms related to Set Point
Ab = High and low alarms related to the absolute temperature.

ALU High temperature alarm setting:
ALC= rE, 0 ÷ 50°C or 90°F
ALC= Ab, ALL ÷ 110°C or 230°F
when this temperature is reached and after the ALd delay time the HA alarm is enabled.

ALL Low temperature alarm setting:
ALC = rE , 0 ÷ 50 °C or 90°F
ALC = Ab , - 50°C or -58°F ÷ ALU
when this temperature is reached and after the ALd delay time, the LA alarm is enabled.

AU2 High temperature alarm setting for NT cell (only XW370K):
AUC= rE, 0 ÷ 50°C or 90°F
ALC= Ab, ALL ÷ 110°C or 230°F
when this temperature is reached and after the ALd delay time the HA2 alarm is enabled.

AL2 Low temperature alarm setting for NT cell (only XW370K):
ALC = rE , 0 ÷ 50 °C or 90°F
ALC = Ab , - 50°C or -58°F ÷ ALU
when this temperature is reached and after the ALd delay time, the LA2 alarm is enabled.

AFH Temperature alarm and fan differential: (0,1÷25,5°C; 1÷45°F) Intervention differential for temperature alarm set point and fan regulation set point, always positive.

ALd Temperature alarm delay: (0÷255 min) time interval between the detection of an alarm condition and the corresponding alarm signalling.

dAO Delay of temperature alarm at start-up: (0min÷23h 50min) time interval between the detection of the temperature alarm condition after the instrument power on and the alarm signalling.

EdA Alarm delay at the end of defrost: (0÷255 min) Time interval between the detection of the temperature alarm condition at the end of defrost and the alarm signalling.

dot Delay of temperature alarm after closing the door : (0÷255 min) Time delay to signal the temperature alarm condition after closing the door.

doA Open door alarm delay:(0÷255 min) delay between the detection of the open door condition and its alarm signalling: the flashing message "**dA**" is displayed.

nPS Pressure switch number: (0 ÷15) Number of activation of the pressure switch, during the "**did**" interval, before signalling the alarm event (I2F= PAL).

PROBE INPUTS

Ot Thermostat probe calibration: (-12.0÷12.0°C/ -21÷21°F) allows to adjust possible offset of the thermostat probe.

OE Evaporator probe calibration: (-12.0÷12.0°C/ -21÷21°F) allows to adjust possible offsets of the evaporator probe.

O3 Auxiliary probe calibration: (-12.0÷12.0°C/ -21÷21°F) allows to adjust possible offsets of the display probe.

O4 NT cell probe calibration (only XW370K): (-12.0÷12.0°C/ -21÷21°F) allows to adjust possible offsets of the NT cell probe.

P2P Evaporator probe presence:
n= not present: the defrost stops only by time; **y**= present: the defrost stops by temperature and time.

P3P Display probe presence: n= not present; **y**= present.

P4P NT cell probe presence (only XW370K): n= not present; **y**= present.

DIGITAL INPUTS

odc Compressor and fan status when open door:
no = normal;
Fan = Fan OFF;
CPr = Compressor OFF;
F_C = Compressor and fan OFF.

I1P Door switch input polarity:
CL : the digital input is activated by closing the contact;
OP : the digital input is activated by opening the contact.

I2P Configurable digital input polarity:
CL : the digital input is activated by closing the contact;
OP : the digital input is activated by opening the contact

I2F Digital input operating mode: configure the digital input function:
EAL = generic alarm;
bAL = serious alarm mode;
PAL = Pressure switch;
dFr = Start defrost;
CH = Switch controller working action between heating and cooling;
HEA = Heater output on;

did Time interval/delay for digital input alarm:(0÷255 min.) Time interval to calculate the number of the pressure switch activation when I2F=PAL. If I2F=EAL or bAL (external alarms), "did" parameter defines the time delay between the detection and the successive signalling of the alarm.

OTHER

Adr RS485 serial address (1÷247)**:** Identifies the instrument address when connected to a ModBUS compatible monitoring system.

Rel Release software: (read only) Software version of the microprocessor.

Ptb Parameter table: (read only) it shows the original code of the dIXEL parameter map.

Prd Probes display: (read only) display the temperature values of the probes.

Pr2 Access to the protected parameter list (read only).

6. DIGITAL INPUTS

The Wing series can support up to 2 free contact digital inputs. One is always configured as door switch, the second is programmable in seven different configurations by the "**I2F**" parameter.

6.1 DOOR SWITCH INPUT

It signals the door status and the corresponding relay output status through the "**odc**" parameter:
no = normal (any change);
Fan = Fan OFF;
CPr = Compressor OFF;
F_C = Compressor and fan OFF.

Since the door is opened, after the delay time set through parameter "**dOA**", the alarm output is enabled and the display shows the message "**dA**". The alarm stops as soon as the external digital input is disabled again. During this time and then for the delay "**dot**" after closing the door, the high and low temperature alarms are disabled.

6.2 CONFIGURABLE INPUT - GENERIC ALARM (EAL)

As soon as the digital input is activated the unit will wait for "**did**" time delay before signalling the "**EAL**" alarm message. The outputs status don't change. The alarm stops just after the digital input is de-activated.

6.3 CONFIGURABLE INPUT - SERIOUS ALARM MODE (BAL)

When the digital input is activated, the unit will wait for "**did**" delay before signalling the "**BAL**" alarm message. The relay outputs are switched OFF. The alarm will stop as soon as the digital input is de-activated.

6.4 CONFIGURABLE INPUT - PRESSURE SWITCH (PAL)

If during the interval time set by "**did**" parameter, the pressure switch has reached the number of activation of the "**nPS**" parameter, the "**PAL**" pressure alarm message will be displayed. The compressor and the regulation are stopped. When the digital input is ON the compressor is always OFF.

6.5 CONFIGURABLE INPUT - START DEFROST (DFR)

It executes a defrost if there are the right conditions. After the defrost is finished, the normal regulation will restart only if the digital input is disabled otherwise the instrument will wait until the "Mdf" safety time is expired.

6.6 CONFIGURABLE INPUT - CHANGE WORKING MODE (CH)

This function allows to switch controller working mode between Cooilng action and Heating action.

6.7 CONFIGURABLE INPUT - HEATER OUTPUT (HEA)

This function allows to switch on controller heater output. The heater output will be on as long as the digital input is activated. During this phase the compressor output is always off

6.8 DIGITAL INPUTS POLARITY

The digital inputs polarity depends on "**I1P**" and "**I2P**" parameters.

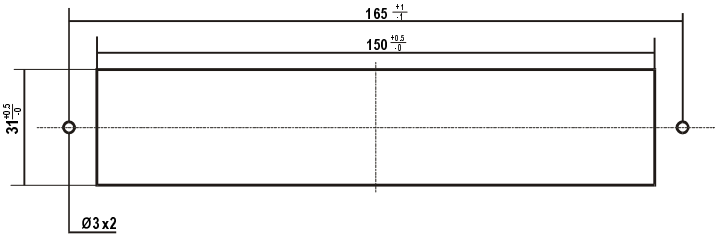
CL : the digital input is activated by closing the contact.

OP : the digital input is activated by opening the contact

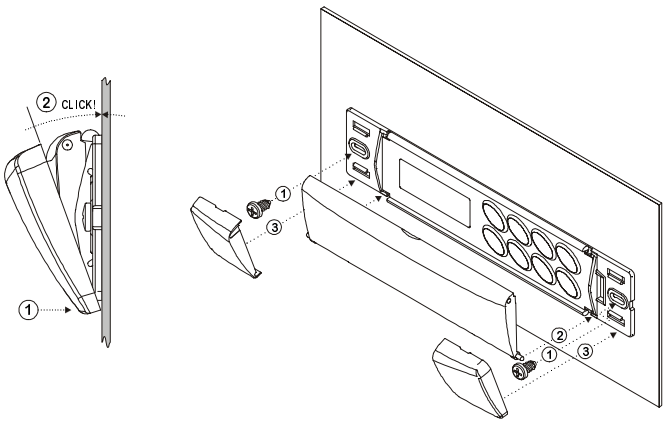
7. INSTALLATION AND MOUNTING

The keyboard shall be mounted on vertical panel, in a 150x31 mm hole, and fixed using two screws ∅ 3 x 2mm. To obtain an IP65 protection grade use the front panel rubber gasket (mod. RG-W). Power modules shall be mounted in a panel with two or more screws and they must be connected to the keyboards by means of a two-wire cable (∅ 1mm). The temperature range allowed for correct operation is 0 - 60 °C. Avoid places subject to strong vibrations, corrosive gases, excessive dirt or humidity. The same recommendations apply to probes. Let the air circulate by the cooling holes.

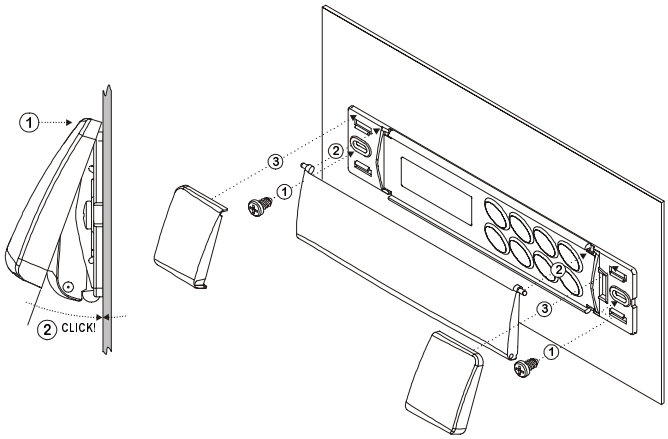
7.1 T630 KEYBOARD CUT OUT



7.2 MOUNTING WITH KEYBOARD COVER OPENING DOWNWARD



7.3 MOUNTING WITH KEYBOARD COVER OPENING UPWARD



8. ELECTRICAL CONNECTIONS

The power board is provided with screw terminal block to connect cables with a cross section up to 2,5 mm^2 for the RS485(optional) and the keyboard. Connections of other inputs, power supply and relays are provided with Faston (6,3mm). Heat-resistant cables have to be used. Before connecting cables make sure the power supply complies with the instrument's requirements. Separate the probe cables from the power supply cables, from the outputs and the power connections. Do not exceed the maximum current allowed on each relay, in case of heavier loads use a suitable external relay.

8.1 PROBE CONNECTIONS

The probes shall be mounted with the bulb upwards to prevent damages due to casual liquid infiltration. It is recommended to place the thermostat probe away from air streams to correctly measure the average room temperature. Place the defrost termination probe among the evaporator fins in the coldest place, where most ice is formed, far from heaters or from the warmest place during defrost, to prevent premature defrost termination.

9. TTL/RS485 SERIAL LINE

The TTL connector allows, by means of the external module TTL/RS485 **(XJ485)**, to connect the unit to a network line **ModBUS-RTU** compatible as the dIXEL monitoring system XJ500 (Version 3.0).

The same TTL connector is used to upload and download the parameter list of the "**HOT KEY**". The instruments can be ordered wit the serial output RS485(Optional).

10. USE OF THE PROGRAMMING "HOT KEY "

The Wing units can UPLOAD or DOWNLOAD the parameter list from its own E2 internal memory to the **"Hot Key"** and vice-versa.

10.1 DOWNLOAD (FROM THE "HOT KEY" TO THE INSTRUMENT)

1. Turn OFF the instrument by means of the ON/OFF key, remove the TTL serial cable if present, insert the **"Hot Key"** and then turn the Wing ON.
2. Automatically the parameter list of the **"Hot Key"** is downloaded into the Wing memory, the "**DoL**" message is blinking. After 10 seconds the instrument will restart working with the new parameters.
3. Turn OFF the instrument remove the **"Hot Key",** plug in the TTL serial cable, then turn it ON again.

At the end of the data transfer phase the instrument displays the following messages:

"**end** " for right programming.
The instrument starts regularly with the new programming.
"**err**" for failed programming.
In this case turn the unit off and then on if you want to restart the download again or remove the "**Hot key**" to abort the operation.

10.2 UPLOAD (FROM THE INSTRUMENT TO THE "HOT KEY")

1. Turn OFF the instrument by means of the ON/OFF key and remove the TTL serial cable if present; then turn it ON again.
2. When the Wing unit is ON, insert the "**Hot key**" and push è key; the **"uPL"** message appears.
3. Push "**SET"** key to start the UPLOAD; the "**uPL**" message is blinking.
4. Turn OFF the instrument remove the **"Hot Key",** plug in the TTL serial cable, then turn it ON again.

At the end of the data transfer phase the instrument displays the following messages:

"**end** " for right programming.
"**err**" for failed programming. In this case push "SET" key if you want to restart the programming again or remove the not programmed "**Hot key**".

11. ALARM SIGNALS

Message	Cause	Outputs
"P1"	Thermostat probe failure	Alarm output ON; Compressor output according to parameters "COn" and "COF"
"P2"	Evaporator probe failure	Alarm output ON; Other outputs unchanged
"P3"	Auxiliary probe failure	Alarm output ON; Other outputs unchanged
"P4"	NT cell probe failure	Alarm output ON; Other outputs unchanged
"HA"	Maximum temperature alarm	Alarm output ON; Other outputs unchanged
"LA"	Minimum temperature alarm	Alarm output ON; Other outputs unchanged
"HA2"	Maximum temperature alarm NT cell	Alarm output ON; Other outputs unchanged
"LA2"	Minimum temperature alarm NT cell	Alarm output ON; Other outputs unchanged
"EE"	Data or memory failure	Alarm output ON; Other outputs unchanged
"dA"	Door switch alarm	Alarm output ON; Other outputs unchanged
"EAL"	External alarm	Alarm output ON; Other outputs unchanged
"BAL"	Serious external alarm	Alarm output ON; Other outputs OFF
"PAL"	Pressure switch alarm	Alarm output ON; Other outputs OFF
"SEr"	Service time expired	unchanged

The alarm message is displayed until the alarm condition is recovery.
All the alarm messages are showed alternating with the room temperature except for the "P1" which is flashing.
To reset the "EE" alarm and restart the normal functioning press any key, the "**rSt**" message is displayed for about 3s.

11.1 "EE" ALARM

The dIXEL instruments are provided with an internal check for the data integrity. Alarm "EE" flashes when a failure in the memory data occurs. In such cases the alarm output is enabled.

11.2 "SER" ALARM

This alarm appear when the maximum device on time (SH parameter) has expired. It doesn't effect the functioning of the controller but simply states that the maintenance time for the vehicle has come. To reset the time turn off the controller and then turn it on again keeping SET key pressed.

11.3 ALARM RECOVERY

Probe alarms : "**P1**" (probe1 faulty), "**P2**", "**P3**" and "**P4**" automatically stop 10s after the probe restarts normal operation. Check connections before replacing the probe.
Temperature alarms "**HA**", "**LA**", "**HA2**" and "**LA2**" automatically stop as soon as the thermostat temperature returns to normal values or when the defrost starts.
Door switch alarm "**dA**" stop as soon as the door is closed.
External alarms "**EAL**", "**BAL**" stop as soon as the external digital input is disabled "**PAL**" alarm is recovered by switching OFF the instrument.

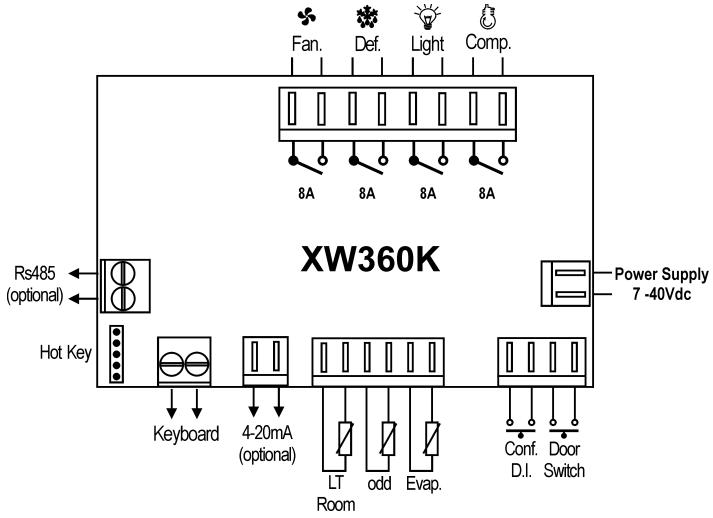
12. TECHNICAL DATA

T630 Keyboard
Housing: self extinguishing ABS.
Case: facia 38x185 mm; depth 23mm
Mounting :
panel mounting in a 150x31 mm panel cut-out with two screws. ∅ 3 x 2mm.
Distance between the holes 165mm
Frontal protection: IP65 with frontal gasket mod RG-W. (optional)
Connections: Screw terminal block ≤ 2,5 mm^2 heat-resistant wiring and 6,3mm
Power supply: from power module
Display: 3 digits, red LED, 14,2 mm high.
Optional output: buzzer

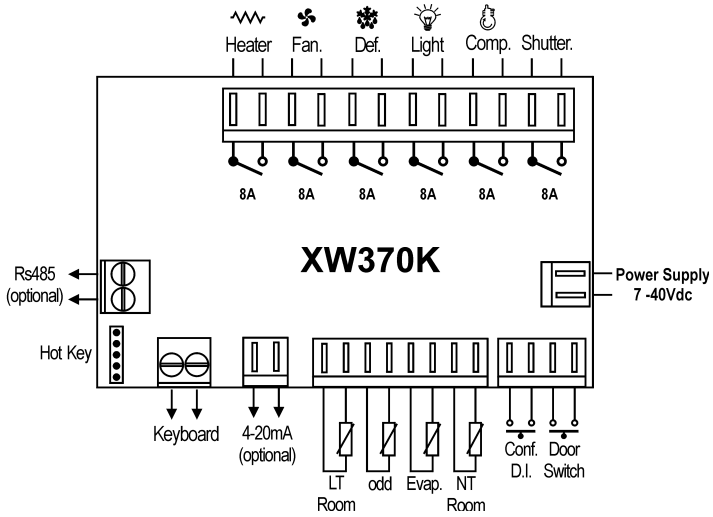
Power modules
Case:
"OS": open board 132x 94 mm; height: 40mm.
"GS": case 155x114; height 70mm. Self extinguishing ABS. IP55
Connections: Screw terminal block ≤ 2,5 mm^2 heat-resistant wiring and 6,3mm Faston
Power supply: 7-40Vdc
Power absorption: 10VA max.
Inputs: up to 4 NTC probes
Digital inputs: 2 free voltage
Relay outputs:
compressor: relay SPST 8 A
light: relay SPST 8 A
fans relay SPST 8 A
defrost: relay SPST 8 A
shutter (only XW370K): relay SPST 8 A
heater (only XW370K): relay SPST 8 A
Serial output : RS485 optional
Communication protocol: Modbus - RTU
Data storing: on the non-volatile memory (EEPROM).
Kind of action: 1B
Pollution grade: normal
Software class: A
Operating temperature: 0÷60 °C.
Storage temperature: -25÷60 °C.
Relative humidity: 20÷85% (no condensing)
Measuring and regulation range: NTC probe: -40÷110°C (-58÷230°F)
Resolution: 0,1 °C or 1°C or 1 °F (selectable).
Accuracy (ambient temp. 25°C): ±0,5 °C ±1 digit

13. CONNECTIONS

13.1 XW360K



13.2 XW370K



14. DEFAULT SETTING VALUES

Label	Name	Range	Default	Level	
	REGULATION		°C/°F	XW360K	XW370K
Set	Set point	LS÷US	-5/23	Pr1	Pr1
Se2	Set point NT cell	LS÷US	2/23	- - -	Pr1
Hy	Differential	0,1÷25,5 °C 1÷45°F	2/4	Pr1	Pr1
LS	Minimum set point	-50,0°C÷SET -58°F÷SET	-30/-22	Pr2	Pr2
US	Maximum set point	SET ÷ 110°C SET ÷ 230°F	20/68	Pr2	Pr2
Stb	Time base for parameter SH	Hou ÷ Day	Hou	Pr2	Pr2
SH	Maximum device on time	0÷200.	100	Pr2	Pr2
OdS	Outputs activation delay at start up	0÷255 min.	1	Pr2	Pr2
AC	Anti-short cycle delay	0÷30 min.	1	Pr1	Pr1
CCt	Compressor ON time during fast freezing	0 ÷ 23h 50 min.	0	Pr2	Pr2
COn	Compressor ON time with faulty probe	0÷255 min.	15	Pr2	Pr2
COF	Compressor OFF time with faulty probe	0÷255 min.	30	Pr2	Pr2
CH	Controlling action	CL ÷ Ht ÷ db	CL	Pr2	Pr2
	DISPLAY				
CF	Temperature measurement unit	°C ÷ °F	°C/°F	Pr2	Pr2
rES	Resolution (integer/decimal point)	in ÷ de	de	Pr1	Pr1
Lod	Local display	P1 ÷ 1r2	P1	Pr2	Pr2
	DEFROST				
tdF	Defrost type	rE, rT, in	rE	Pr1	Pr1
EdF	Defrost mode	rt, In, Sd, odd	odd	Pr2	Pr2
SdF	Set point for SMART DEFROST	-30 ÷ +30°C -22÷+86°F	0	Pr2	Pr2
dtE	Defrost termination temperature (1°Evaporator)	-50,0÷110°C -58÷230°F	8/46	Pr1	Pr1

Label	Name	Range	Default	Level	
			°C/°F	XW360K	XW370K
dtb	Time base for IdF parameter	Min ÷Hou	Min	Pr2	Pr2
IdF	Interval between defrost cycles	1÷120	6	Pr1	Pr1
MdF	(Maximum) length for 1° defrost	0÷255 min.	30	Pr1	Pr1
Idc	Reference temperature acquisition mode (for on demand defrost)	1°r ÷ 2°r ÷ 3°r ÷ 2A ÷ 3A	1°r	Pr2	Pr2
IdH	Differential for on demand defrost	0,1 ÷ 25,5	5	Pr2	Pr2
IFt	Minimum fan on time before odd	0 ÷ 255	30	Pr2	Pr2
dFd	Displaying during defrost	rt, it, SEt, dEF, dEG	it	Pr2	Pr2
dAd	MAX display delay after defrost	0÷255 min.	30	Pr2	Pr2
Fdt	Draining time	0÷60 min.	0	Pr2	Pr2
dPO	First defrost after start up	n ÷ y	n	Pr2	Pr2
dAF	Defrost delay after fast freezing	0 ÷ 23h 50 min.	2	Pr2	Pr2
	FANS				
FnC	Fans operating mode	C-n, C-y, O-n, O-y	O-n	Pr2	Pr2
Fnd	Fans delay after defrost	0÷255 min.	10	Pr2	Pr2
FSt	Fans stop temperature	-50,0÷110°C -58÷230°F	2/35	Pr2	Pr2
	ALARMS				
ALC	Temperature alarms configuration	rE÷Ab	rE	Pr2	Pr2
ALU	MAXIMUM temperature alarm	-50,0÷110°C -58÷230°F	10/20	Pr1	Pr1
ALL	minimum temperature alarm	-50,0÷110°C -58÷230°F	10/20	Pr1	Pr1
AU2	MAXIMUM temperature alarm NT cell	-50,0÷110°C -58÷230°F	10/20	- - -	Pr1
AL2	minimum temperature alarm NT cell	-50,0÷110°C -58÷230°F	10/20	- - -	Pr1
AFH	Temperature alarm and fan differential	0,1÷25,5 °C 1÷45°F	2/4	Pr2	Pr2
ALd	Temperature alarm delay	0÷255 min.	15	Pr2	Pr2
dAO	Delay of temperature alarm at start up	0 ÷ 23h 50 min.	1,3	Pr2	Pr2
EdA	Alarm delay at the end of defrost	0÷255 min.	30	Pr2	Pr2
dot	Delay of temperature alarm after closing the door	0÷255 min.	15	Pr2	Pr2
dOA	Open door alarm delay	0÷255 min.	15	Pr2	Pr2
nPS	Pressure switch activation number	0÷15	0	Pr2	Pr2
	ANALOGUE INPUTS				
Ot	Thermostat probe calibration	-12,0÷12,0°C -21÷21°F	0	Pr1	Pr1
OE	Evaporator probe calibration	-12,0÷12,0°C -21÷21°F	0	Pr2	Pr2
O3	Auxiliary probe calibration	-12,0÷12,0°C -21÷21°F	0	Pr2	Pr2
O4	NT cell probe calibration	-12,0÷12,0°C -21÷21°F	0	-	Pr2
P2P	Evaporator probe presence	n ÷ y	y	Pr2	Pr2
P3P	Auxiliary probe presence	n ÷ y	n	Pr2	Pr2
P4P	NT probe presence	n ÷ y	y	- - -	Pr2
	DIGITAL INPUTS				
Odc	Open door control	no, Fan, CPr, F_C	Fan	Pr2	Pr2
I1P	Door switch polarity	CL÷OP	CL	Pr2	Pr2
I2P	Configurable digital input polarity	CL÷OP	CL	Pr2	Pr2
i2F	Digital input configuration	EAL, bAL, PAL, dFr, CH, HEA	EAL	Pr2	Pr2
dId	Digital input alarm delay	0÷255 min.	5	Pr2	Pr2
	OTHER				
Adr	Serial address	0÷247	1	Pr1	Pr1
rEL	Software release	- - -	1.0	Pr2	Pr2
Ptb	Map code	- - -	- - -	Pr2	Pr2
Prd	Probes display	Pb1÷Pb4	- - -	Pr2	Pr2
Pr2	Access parameter list	- - -	- - -	Pr2	Pr2

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