

WING

XW270K - XW271K

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.

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.

2. GENERAL DESCRIPTION

Models XW270K and XW271K are microprocessor based controllers suitable for applications on medium or low temperature refrigerating units.

The standard TTL output allows the user to connect, by means of a TTL/RS485 external module, a ModBUS-RTU compatible monitoring system and to programme the parameter list with the "Hot Key".

3. CONTROLLING LOADS

3.1 THE COMPRESSOR

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.

3.2 FAST FREEZING

When defrost is not in progress, it can be activated the keypad by holding the key pressed for about 3 seconds. The compressor operates in continuous mode for the time set through the "CCt" parameter.

3.3 DEFROST

Three defrost modes are available through the "ldF" 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 "ldF" time, (EdF=Sd) the interval "ldF" is calculate through Smart Defrost algorithm (only when the compressor is ON and the evaporator temperature is bigger than "SdF" parameter).

3.4 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 "FS" 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 "FS".

3.5 AUXILIARY OUTPUT

The auxiliary output is switch ON and OFF by means of the corresponding button on the keyboard.

4. KEYBOARD



set To display and modify target set point; in programming mode it selects a parameter or confirm an operation.

▲ To see the max. stored temperature; in programming mode it browses the parameter codes or increases the displayed value.

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

☒ Switch ON and OFF the cold room light.

☑ By holding it pressed for 3s Energy Saving function is started or stopped.

aux Present in T820 Keyboard (for connection to XW270K). Switch ON and OFF the auxiliary output.

☑ Present in T821 Keyboard (for connection to XW271K). Switch ON and OFF the anti-condensing heater output.

⏻ Switch ON and OFF the instrument.

KEY COMBINATIONS

▲ + ▼ To lock and unlock the keyboard.

set + ▼ To enter the programming mode.

set + ▲ To exit the programming mode.

4.1 USE OF LEDS

Each LED function is described in the following table.

Table with 3 columns: LED, MODE, Function. Rows include COMPRESSOR RUNNING, PROGRAMMING PHASE, FAN RUNNING, DEFROST ENABLED, FAST FREEZING CYCLE, ALARM, and AUXILIARY OUTPUT.

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

Table with 3 columns: BUTTON, MODE, FUNCTION. Rows include SET, DEFROST, ENERGY SAVING, LIGHT, AUX, HEATER, and ON/OFF.

4.2 HOW TO SEE THE MIN TEMPERATURE

- Press and release the key.
- The "Lo" message will be displayed followed by the minimum temperature recorded.
- By pressing the key or waiting for 5s the normal display will be restored.

4.3 HOW TO SEE THE MAX TEMPERATURE

- Press and release the key.
- The "Hi" message will be displayed followed by the maximum temperature recorded.
- By pressing the key or waiting for 5s the normal display will be restored.

4.4 HOW TO RESET THE MAX AND MIN TEMPERATURE RECORDED

- Press SET key until "rST" label starts blinking.

N.B. After the installation RESET the temperature stored .

4.5 HOW TO SEE AND MODIFY THE SET POINT

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

4.6 TO START A MANUAL DEFROST

- Push the DEF key for more than 2 seconds and a manual defrost will start.

4.7 TO ENTER IN PARAMETERS LIST "Pr1"

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

- Enter the Programming mode by pressing the Set and DOWN key for few seconds and start blinking.
- The instrument will show the first parameter present in "Pr1"

4.8 TO ENTER IN PARAMETERS LIST "Pr2"

- To access parameters in "Pr2":
- Enter the "Pr1" level.
- Select "Pr2" parameter and press the "SET" key.
- The "PAS" flashing message is displayed, shortly followed by "0 - -" with a flashing zero.
- Use arrows to input the security code in the flashing digit; confirm the figure by pressing "SET". The security code is "321".
- 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.

4.9 HOW TO CHANGE THE PARAMETER VALUE

- Enter the Programming mode.
- Select the required parameter with arrows.
- Press the "SET" key to display its value (and LED starts blinking).
- Use arrows to change its value.
- 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.

4.10 HOW TO LOCK THE KEYBOARD

- Keep the key and key pressed together for more than 3 s the and keys.
- 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 key and key pressed together for more than 3s.

4.11 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.

4.12 TO SEE THE PROBE VALUES

- Enter in "Pr2" level.
- Select "Prd" parameter with arrows.
- Press the "SET" key to display "Pb1" label alternate with Pb1 value.
- Use key and key to display the other probe values.
- 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.

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.

DEFROST

ldF 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 "dE" value.

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;

ALARMS

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

PROBE INPUTS

Ot Thermostat probe calibration: (-12,0+12,0°C/ -21+21°F) allows to adjust possible offset of the thermostat probe.

DIGITAL INPUTS

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

OTHER

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

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;

