

XWA11V**Walk-In Temp / Door /Alarm / Light Module****1. GENERAL DESCRIPTION**

Model **XWA11V**, 100x64 mm format, is a microprocessor-based controller, suitable for temperature monitoring and alarming in a walk-in cooler or freezer. It is provided with two (2) Relay Contacts to control lights and an external alarms. It is provided with one (1) NTC probe input for temperature measurement. The unit has 2 Digital Inputs, one for a Door Switch and the 2nd as an optional Panic Switch. See the catalog for optional accessories. One 5Pin Input allows the user to program the parameter list with a “Hot Key” (see section 9)

Note: The default settings are listed in the back of this manual. They are set for Coolers (Medium Temp). For Freezers (Low Temp) you MUST Change the ALL and ALU settings. See Section 4.0

2. GENERAL WARNINGS**2.1  PLEASE READ BEFORE USING THIS MANUAL**

- This manual is part of the product and should be kept close to 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.

2.2 SAFETY PRECAUTIONS READ ME FIRST!

- Check if the supply voltage is correct before connecting the instrument.
- **Do not expose the back of the instrument to water or moisture:** use the controller only within the operating limits avoiding sudden temperature changes with high atmospheric humidity to prevent the formation of condensation.
- **Be sure to seal any J-Box with RTV sealant to prevent cold and moisture intrusion.**
- Warning: disconnect all electrical connections before performing any maintenance operation.
- Fit the probe where it is not damaged by the end-user. The instrument must not be opened.
- In case of failure or faulty operation send the instrument back to the distributor (see address) with a detailed description of the fault.
- Consider the maximum current that 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 or you may get bad temp readings.**

3. INTERFACE



KEY



FRONT PANEL OPERATION
 In Programming Mode press to **select** a parameter or to **confirm** an operation.
 Press and hold this key for more than 5 s **to turn the controller OFF.**
 Press and hold this key for more than 1 s **to turn the controller back ON.**



Press to see the HIGH Temp ALARM (**ALU** parameter)



Press to see the LOW Temp ALARM (**ALL** parameter)



In Programming Mode press to browse parameter codes.
 Press to increase the displayed value.
 Press to mute the buzzer (+ relay) when an ALARM is happening.
Hot key programming: with the instrument on, insert the hot key and then press the UP button.



In Programming Mode press to browse parameter codes.
 Press to decreases the displayed value.



Switch ON and OFF the light of the cold room

KEY COMBINATIONS: PRESS SIMULTANEOUSLY



To lock and unlock the Keyboard.



To enter the Programming Mode.



To exit the Programming Mode.



To enter a new value for the HIGH Temp ALARM (**ALU**).



To enter a new value for the LOW Temp ALARM (**ALL**).

3.1 USE OF LEDS

Each LED function is described in the following table:

| LED | MODE | Function |
|-----|------|------------------------------|
| | ON | ALARM signaling |
| | ON | The light is on |
| °C | ON | Celsius degrees operation |
| °F | ON | Fahrenheit degrees operation |

4. TEMP ALARMS SETTING

4.1 HOW TO SET THE MIN TEMPERATURE ALARM

- **To modify the minimum (LOW) Temp ALARM:** hold the + keys pressed for 3 s until the minimum Temp alarm is displayed.
- Change the value using the **UP** and **DOWN** keys.
- Press the **SET** key to confirm the new value and exit.

4.2 HOW TO SET THE MAX TEMPERATURE ALARM

- **To modify the max (HIGH) Temp ALARM:** hold the + keys pressed for 3 s until the max Temp alarm is displayed.
- Change the value using the **UP** and **DOWN** keys.
- Press the **SET** key to confirm the new value and exit.

5. PROGRAMMING

5.1 HOW TO CHANGE A PARAMETER VALUE MAIN MENU

1. Enter the Programming Mode by pressing the **SET** and **DOWN** key for **3s** (and will start blinking).
2. Select the required parameter. By using the **UP** or **DOWN** KEY
3. Press the **"SET"** key to display its value (now only the LED is blinking).
4. Use **"UP"** or **"DOWN"** to change its value.

Press **"SET"** to store the new value and move to the following parameter.

To exit: Press **SET + UP** or wait 15 s without pressing a key.

NOTE: the set value is stored even when the procedure is exited, by waiting the time-out to expire.

5.2 THE HIDDEN MENU (PR2)

The hidden menu includes all the parameters of the instrument.

5.2.1 HOW TO ENTER THE HIDDEN MENU (PR2)

1. Enter the Programming Mode by pressing the **Set + down** key for **3s** (and starts blinking).
2. When a parameter is displayed, **release and re-press** the **SET + down** for more than **7s**.
3. The **Pr2** label will be displayed immediately followed from the **HY** parameter. **NOW YOU ARE IN THE HIDDEN MENU.**
4. **Select** the required parameter as above
5. Press the **"SET"** key to display its value (Now only the LED is blinking).
6. Use **"UP"** or **"down"** to change its value.

7. 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 set value is stored even when the procedure is exited by waiting the time-out to expire.

5.2.2 HOW TO MOVE A PARAMETER FROM THE HIDDEN MENU TO THE FIRST LEVEL AND VICEVERSA

Each parameter present in the HIDDEN MENU can be removed or put into "THE FIRST LEVEL" (user level) by pressing **"SET + down"**.

In HIDDEN MENU when a parameter is present in First Level the **decimal point LED is on**.

5.3 HOW TO LOCK THE KEYBOARD



1. Keep pressed for more than **3s** the **UP** and **DOWN** keys.
2. The **"POF"** message will be displayed and the keyboard will be **locked**. At this point it will be possible only to see the Set Point or the MAX o MIN Temp stored
3. If a key is pressed more than **3s** the **"POF"** message will be displayed.

5.4 TO UNLOCK THE KEYBOARD

Keep pressed together for more than **3s** the **UP** and **DOWN** keys. The **"PON"** message is displayed

6. LIGHT MANAGEMENT

6.1 TIMED REGULATION: i1L = Y

With **i1L = y** the light remains on at least for the **LHt** parameter.

The **LHt** timer is re-initialized every time the light button is pushed.

With **LHt=0** the light remains on until the light button is pushed again.

The light is switched on every time one of the following conditions happens:

- the door is open (**i1F = dor**)
- the presence sensor is activated (**i2F = LHt**)
- the light button is pushed

The light is switched off when all the following conditions happen:

- the **LHt** timer is exhausted
- the door is closed (**i1F = dor**)
- the presence sensor is de-activated (**i2F = LHt**)
- Light button regulation: **i1L = n**

The lights will flash (for 2 minutes) every 20 seconds for the **FLH** time (0-5 min) at the end of the **LHt** time as a warning that the lights are about to turn off.

The **light button has a higher priority than digital inputs** therefore:

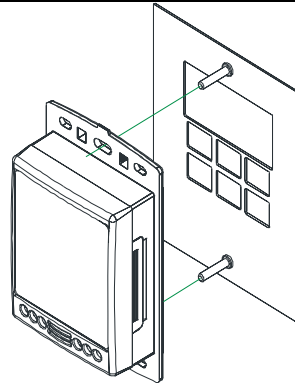
- if the light was switched on by button the digital input can not modify its status.
- if the light was switched on by digital input, the light button can modify its status.

7. INSTALLATION AND MOUNTING

7.1 MOUNTING OF XWA11V

The **XWA11V** must be mounted on vertical panel, in a J-Box (Steel City P/N 68371/2) or equal or wall mounted using an appropriate enclosure.

The Ambient Temp range for correct operation is 32 – 131°F. (0-55°C) Avoid installation in places subject to strong vibrations, corrosive gases, excessive dirt or humidity. The same recommendations apply to probes.



8. ELECTRICAL CONNECTIONS

The instrument is provided with ¼" fast-on terminal blocks to connect cables with a cross section up to .110" for the digital and analog inputs. Relays and power supply have a Fast-on connection .250" For supply connections use 14 AWG or larger copper or CU wire only rated at least 90°C (194°F). Before connecting cables make sure the power supply complies with the instrument 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 and in case of heavier loads use a suitable external relay.

Note: Maximum current allowed for all the loads is 15A.

8.1 PROBE CONNECTIONS

The probe 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. The probe can be extended up to 300 ft. Check calibration when running long lengths over 100ft.

9. USE OF THE PROGRAMMING "HOT KEY "

9.1 HOW TO PROGRAM A HOT KEY FROM THE INSTRUMENT (UPLOAD)

1. Program one controller with the front keypad.
2. When the controller is ON, insert the "Hot key" and push **UP** key; the "uPL" message appears followed a by flashing "End"
3. Push "SET" key and the **End** will stop flashing.
4. Turn OFF the instrument remove the "Hot Key", then turn it ON again.

NOTE: the "Err" message is displayed for failed programming. In this case push again **o** key if you want to restart the upload again or remove the "Hot key" to abort the operation.

9.2 HOW TO PROGRAM AN INSTRUMENT USING A HOT KEY (DOWNLOAD)

1. Turn OFF the instrument.
2. Insert a **programmed "Hot Key" into the 5 PIN receptacle** and then turn the Controller ON.
3. Automatically the parameter list of the "Hot Key" is downloaded into the Controller memory, the "doL" message is blinking followed a by flashing "End".
4. After 10 seconds the instrument will restart working with the new parameters.
5. Remove the "Hot Key"..

NOTE the message "Err" is displayed 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. ALARM SIGNALS

| Message | Mode | Cause | Outputs |
|---------|----------------------|--------------------|------------------|
| "P1" | Flashing | Probe failure | Alarm output ON |
| "PoF" | Flashing (3s) | Keyboard locked | Not changed |
| "Pon" | Flashing (3s) | Keyboard un-locked | Not changed |
| "HA" | Alternated with temp | Maximum T° alarm | Alarm output ON; |

| | | | |
|-------|----------------------|------------------------|------------------|
| "LA" | Alternated with temp | Minimum T° alarm | Alarm output ON; |
| "dA" | Alternated with temp | Door switch alarm | Alarm output ON; |
| "EA" | Alternated with temp | External alarm | Alarm output ON; |
| "PAn" | Alternated with temp | Serious external alarm | Alarm output ON; |
| dEF | Alternated with temp | Defrost is running | Not changed |

The alarm message is displayed until the alarm condition is reset.

Silencing buzzer

Once the alarm signal is detected the buzzer can be silenced by pressing the **UP** key.

10.1 ALARM RECOVERY

Probe alarms : "P1" (probe1 faulty), "P2" ; they automatically stop 10s after the probe restarts normal operation. Check connections before replacing the probe.

T° alarms "HA" and "LA" automatically stop as soon as the thermostat T° returns to normal values or when the defrost starts.

Door switch alarm "dA" stops as soon as the door is closed.

External alarms "EAL", "BAL" stops as soon as the external digital input is disabled.

11. TECHNICAL DATA

Housing: self extinguishing ABS

Case: face 100x64 mm; depth 45.5mm

Mounting: J-box or wall-mount in suitable enclosure

Frontal protection: IP65

Connections: ¼" fast-on for power, 1/8" fast-on for probes and Digital Inputs

Power supply: 120Vac ± 10%, optional 230Vac ± 10% MAX 15A

Power absorption: 4VA max.

Ambient Temperature: 32-131°F (0-55°C)

Display: 3 digits, red LED, 14,2 mm high.

Inputs: 1 NTC probe

Digital inputs: 2 free voltages

Relay outputs: Relay Contacts

Light: relay SPST 15A, 120Vac;

Alarm: relay SPST 8A, 120Vac

Other output: alarm buzzer

Data storing: on the non-volatile memory (EEPROM).

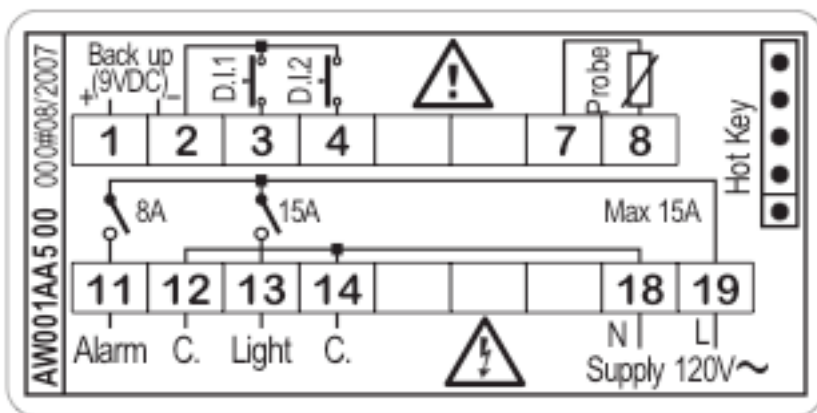
Measuring and regulation range:

NTC probe: -40÷110°C (-58÷230°F)

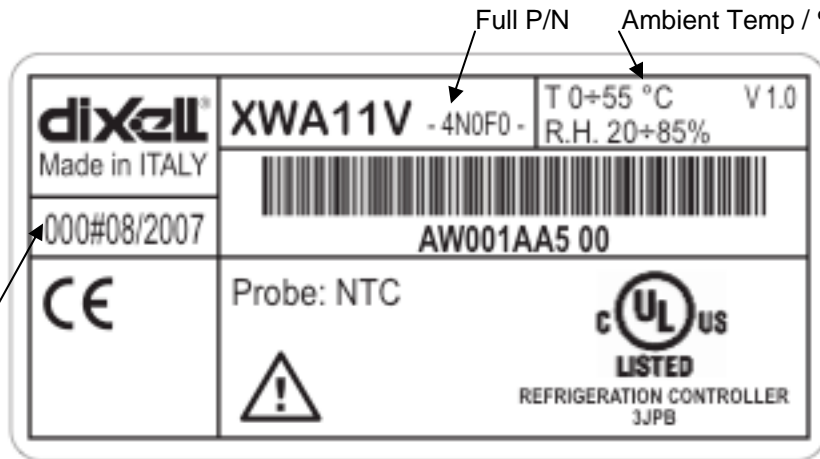
Resolution: 1 °F

Accuracy : ±1 °F

12. CONNECTIONS



Power supply: 120Vac +/- 10% 15A MAX current



Date Code

13. DEFAULT PARAMETER MAP

| LABEL | DESCRIPTION | VALUE | LEVEL | RANGE |
|------------|---|----------|------------|-----------------------|
| ot | Thermostat probe calibration | 0 | Pr2 | [-21°F - 21°F] |
| CF | Temperature measurement unit | F | Pr2 | °C - °F |
| rES | Resolution (only for °C) | in | Pr2 | dE - in |
| UT | Display update | 60 | Pr2 | 0 - 255 (sec.) |
| OnF | Off function enabling | y | Pr2 | n - Y |
| ALU | High temperature alarm setting (med temp / low temp) | 50 / 30 | Pr1 | ALL-302° F |
| ALL | Low temperature alarm setting (med temp / low temp) | 30 / -20 | Pr1 | °-58 - ALU |
| AFH | Temperature alarm differential | 2 | Pr2 | 1°F - 45°F |
| ALd | Temperature alarm delay | 30 | Pr1 | 0 - 255 (min.) |
| dAo | Delay of temperature alarm at start-up | 1.3 | Pr2 | 0.0 - 24.0 Hrs. |
| EdA | Alarm delay at the end of defrost | 30 | Pr2 | 0 - 255 (min.) |
| dot | Delay of temperature alarm after closing the door | 15 | Pr2 | 0 - 255 (min.) |
| LHt | Light timer | 15 | Pr1 | 0 - 255 (min.) |
| FLH | Light Flashing Timer (time before light goes out that it will flash) | 0 | Pr1 | 0 - 5 (Min) |
| doA | Open door alarm delay | 15 | Pr1 | 0 - 255 (min.) |
| oA1 | First relay configuration | ALr | Pr2 | ALr - LHt - OnF |
| oA2 | Second relay configuration | LHt | Pr2 | ALr - LHt - OnF |
| AOP | Alarm relay polarity | oP | Pr2 | OP - CL |
| i1P | Digital input 1 polarity | oP | Pr2 | OP - CL |
| i1L | Door switch to turn light ON | y | Pr2 | n - Y |
| i1F | Digital input 1 operating mode | dor | Pr2 | EAL - dor - dEr - LHt |
| i2P | Digital input 2 polarity | cL | Pr2 | OP - CL |
| i2F | Digital input 2 operating mode | PAn | Pr2 | EAL - Pan - dFr - LHt |
| did | Time interval/delay for digital input alarm | 0 | Pr2 | 0 - 255 (min.) |
| tbA | Alarm relay disabling | n | Pr2 | n - Y |
| PbC | Kind of probe | ntc | Pr2 | PtC - nTC |
| dP1 | Real temperature Probe 1 | | Pr2 | (probe value) |
| rEL | FW release | | Pr2 | read only |
| Ptb | Parameter map | | Pr2 | read only |

14. PARAMETER LIST

- Ot Thermostat probe calibration:** (-12.0÷12.0°C/ -21÷21°F) allows to adjust possible offset of the thermostat probe.
- CF T measurement unit:** °C = Celsius; °F = Fahrenheit. When the measurement unit is changed the Set Point and the values of some parameters have to be modified.
- rES Resolution (for °C):** (in = 1°C; dE = 0.1 °C) allows decimal point display.
- Ut Display update:** The time delay of the T readout (0÷255s)
- onF Off function enabling:** **n** = off function disabled; **y** = off function enabled;
- ALU High T° alarm setting:** (ALL ÷ 150°C or 302°F);
when this T° is reached and after the ALd delay time the HA alarm is enabled.
- ALL Low T° alarm setting:** (- 50°C or -58°F ÷ ALU)
when this T° is reached and after the ALd delay time, the LA alarm is enabled,.
- AFH T° alarm differential:** (0,1÷25,5°C; 1÷45°F) differential for T° alarm Set Point and fan regulation Set Point, always a positive value
- ALd T° alarm delay:** (0÷255 min) time interval between the detection of an alarm condition and the corresponding alarm signaling.
- dAO Delay of T° alarm at start-up:** (0min÷23h 50min) time interval between the detection of the T° alarm condition after the instrument power on and the alarm signaling.
- EdA Alarm delay at the end of defrost:** (0-255 min) Time interval between the detection of the T° alarm condition at the end of defrost and the alarm signaling.
- dot Delay of T° alarm after closing the door:** (0÷255 min) Time delay to signal the T° alarm condition after closing the door.
- LHt Light timer:** (0-255 min) The time the light will stay on after pressing the light switch on the keyboard.
- FLH Light Flashing:** (0-5 min) The light will “double flash” every 20 seconds during the FLH time period before turning off after the LHt time.
- doA Open door alarm delay:**(0÷255 min) delay between the detection of the open door condition and its alarm signaling: the flashing message “dA” is displayed.
- oA1 First relay configuration: (14-15):** ALr = alarm; LHt = light; onF = on/off relay
- oA2 Second relay configuration: (14-16):** ALr = alarm; LHt = light; onF = on/off relay
- AOP Alarm relay polarity:** cL = closing contacts; oP = opening contacts.
- i1P Digital input 1 polarity (1-2):** CL : the digital input is activated by closing the contact;
OP: the digital input is activated by opening the contact
- i1L Door switch to turn light ON(1-2):** (y / no) To turn the light ON automatically when the door is open. The light will turn off based on LHt . Keyboard switch must be turned ON first.
- i1F Digital input 1 operating mode(1-2):** EAL = external alarm; dor = door switch; dFr = A defrost is running; LHt = keep light ON (signal from occupancy sensor) override LHt.;
- i2P Digital input 2 polarity (1-3):** CL : the digital input is activated by closing the contact;
OP: the digital input is activated by opening the contact
- i2F Digital input 2 operating mode:** configure the digital input function:
EAL = External alarm;
PAn =Panic alarm;
dFr = A defrost is running; (need external CT's)
LHt = Keep light ON (signal from occupancy sensor) overrides LHt.
- did Time interval/delay for digital input alarm:**(0÷255 min.) If I2F=EAL or PAn (external alarms), “did” parameter defines the time delay between the detection and the successive signaling of the alarm.
- tbA Alarm relay & Buzzer disabling:** (y ; no)
- Pbc Type of probe (PTC, NTC)**
- dP1 Probe 1 T**
- rEL Software release** for internal use.
- Ptb Parameter table code:** read only.