

XH-T Full Touch Controllers

Advanced temperature and humidity management

PN 08/21 December



Humidity control for pastry refrigerators and meat hanging rooms



Lumity[™] family of controllers equipped with “Full Touch” capacitive touchscreen – 32x74 format – is now even broader thanks to the introduction of a new model. The XH78T is meant to optimize temperature and humidity regulation and it is available also provided with an Inrush relay. Among the main features of this product are the variable speed fan management, high connectivity with supervisor and monitoring systems, as well as with regulation systems for temperature and humidity applications, which cover great part of nowadays market.

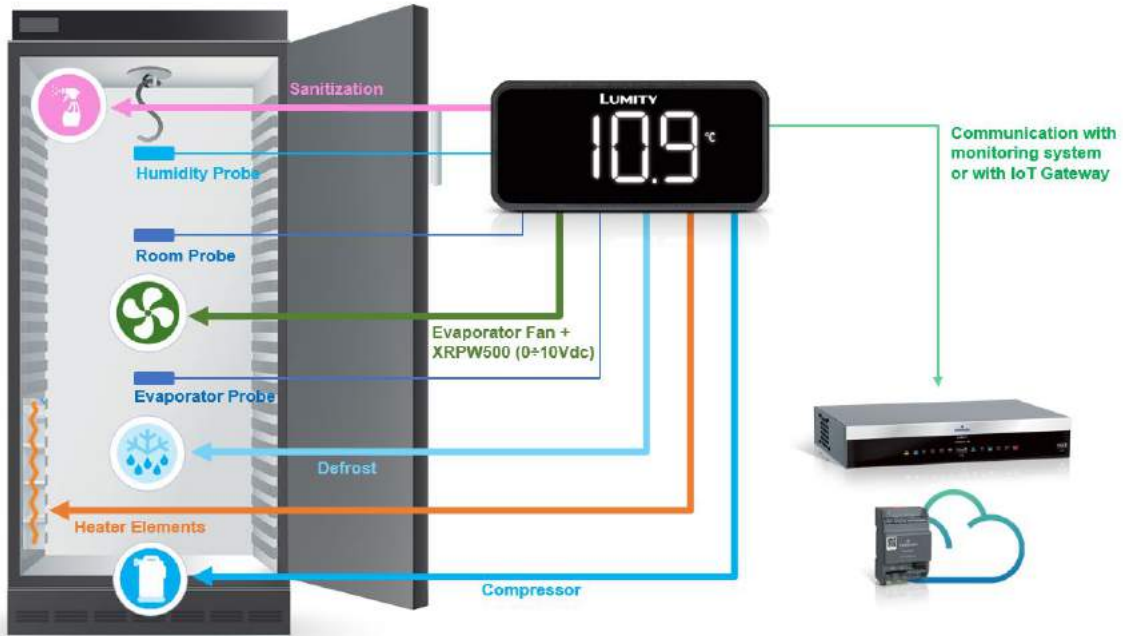
It is now possible to re-program the firmware through the Wizmate[®] software. This ensures the opportunity to implement updates on site without replacing the controller and avoiding machine and/or production stops. Other functions that complete the product performance are the possibility to manage the extractor fan, enable timed sanitization cycles and control evaporator and condenser fans through independent regulators. Moreover, a double parameter map ensures a greater flexibility in use.

1. Applications

Thanks to the high-performance hardware and to the several functions included, XH78T is ready to answer to most needs of the applications currently on the market that require humidity control. Here below are three types of refrigerated cabinets where XH78T will find its perfect application.

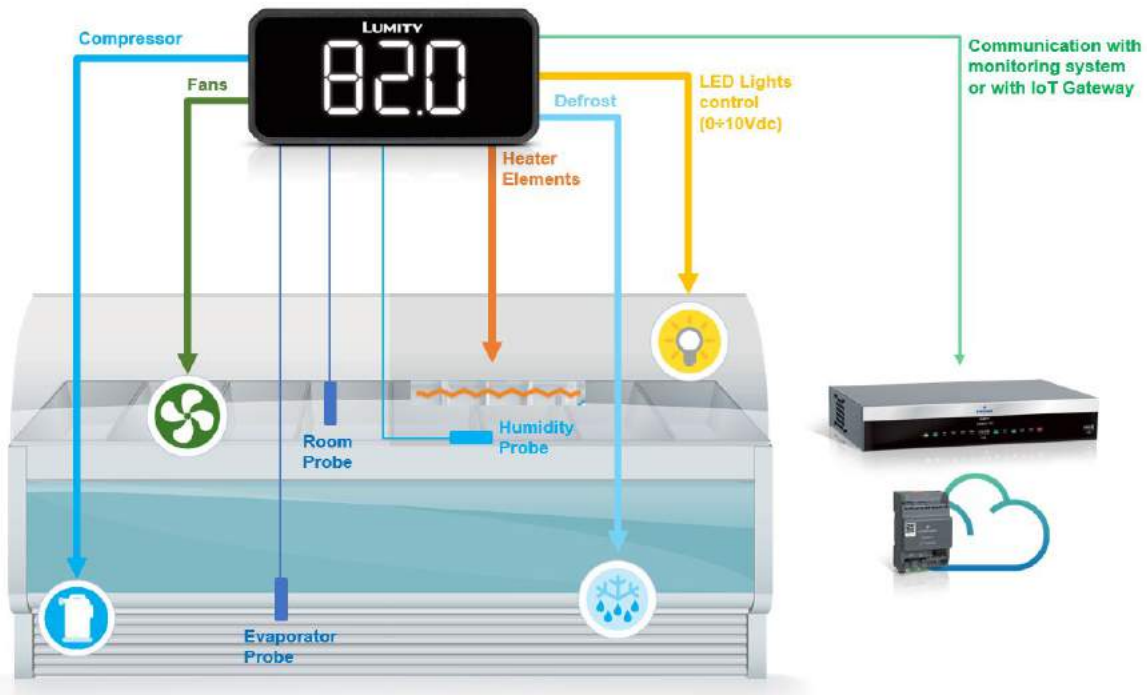
1.1 Meat hanging cabinets

These cabinets allow to reach the appropriate aging point of the meat in a highly controlled and sanitized environment.



1.2 Ice cream display cases

The precise control of temperature and humidity conditions is an essential feature to guarantee the quality of the product stored inside this kind of cases.



2. General features

The new XH78T is characterized by extremely compact dimensions, capacitive touchscreen with Full Touch technology and functions specifically developed to optimize energy consumption as well as temperature and humidity regulation. Other important features are:

- compatibility with low GWP refrigerants
- real time clock (optional)
- light switch-on with motion detection (through X-MOD)
- energy saving mode at intervals and activated by door sensor
- 2-wire RS485 serial communication for direct connection to local networks through ModBUS protocols
- support for XH-REP temperature repeater

Here below are some of the main features in details that make this advanced XH78T a unique model.

2.1 Temperature and humidity regulation

The new XH78T model includes 5 different regulation modes that broaden the range of covered applications. It includes from the simplest ones, when the dehumidification is performed through cooling (compressor is therefore activated) to the most complex ones. For example, ensuring a greater control of the temperature (through a regulation in neutral zone with a heating element) and guaranteeing a more precise control of humidity through humidification and dehumidification actions. Temperature regulation takes priority over humidity regulation. If requests for cooling and dehumidification occur simultaneously, the cooling request has priority.

T1: humidity regulation through:

- Humidifier output
- Dehumidification through cooling (compressor)

T2: humidity regulation through:

- Dehumidifier output
- Dehumidification through cooling (compressor)
- An extra heat output (neutral zone)

T3: only dehumidification through:

- Dehumidifier output and cooling (compressor)
- It is possible to manage an extra heat output that is always activated through a parameter with a scheduled delay with respect to the dehumidifier output and only if the humidity set point has not been reached yet.

T4: humidity regulation through:

- Dehumidification through cooling (compressor)
- Heat output (neutral zone)

T5: humidity regulation through:

- Humidifier output
- Dehumidifier output

2.2 Visualization of values

One single display allows to clearly visualize temperature and humidity values. The new XH78T model implements a visualization mode that alternatively display the regulation values. According to what is required, it is possible to set the parameter to define a different visualization time both for temperature and humidity.



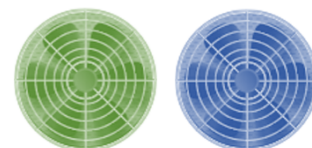
Visualization of temperature



Visualization of humidity

2.3 Fan control

The controller is characterized by an advanced management of the fans, essential parts for applications such as hanging of meat. A proper temperature and humidity management, also through the optimization of air flow, results in enhanced preservation and ripening of food. Two independent regulators (with their own set point, hysteresis, probe, delays, etc.) allow the user to control the fans of both condenser and evaporator. It is also possible to connect variable speed fans with a 0÷10Vdc signal in order to combine a precise regulation with energy saving benefits. The XH78T is equipped with two counters, useful to set scheduled intervals for the maintenance of the evaporator and condenser fans. Once the set time is over, a message will be displayed to warn the user to start the needed maintenance operations.



EXTRACTOR FANS

It is possible to configure one of the digital and/or analog outputs to control the extractor fans. These fans can be activated:

- by pressing a button properly configured
- scheduling timed intervals for the activation and deactivation through specific parameters

2.4 Sanitization function

Sanitization plays an essential role in applications such as meat hanging. For this reason, with this controller it is possible to configure one of the digital and/or analog outputs for this specific function, thus guaranteeing control and elimination of bacteria present inside the storage cabinet. Here are just a few of the beneficial aspects of sanitization: reducing odors, controlling the spread of infections, decreasing use and exposure to detergents, disinfectants, and other chemical products, as well as being compliant with the regulations on food preservation. The XH78T can activate the external device for air sanitization:

- by pressing a button properly configured
- scheduling timed intervals for the activation and deactivation through specific parameters
- at specific and scheduled times through the clock (this requires an article including the real time clock)



2.5 Counters

With the XH78T, analyzing the functioning of the device is even easier and more effective. Thanks to the counters installed it is now possible to identify any malfunction in advance, therefore allowing to intervene before failures occur.

Counters can monitor these variables:

- number of activations of each digital output
- number of operating hours of each digital output
- number of activations of each digital input



2.6 X-MOD motion detector

The XH78T supports the X-MOD motion detector, which is a very useful tool in terms of energy saving since it allows to optimize some actions, such as:

- deactivation of the “Energy Saving” mode when a specific number of movements is detected
- light switch-on, for a pre-set interval, after detecting a specific number of movements
- modification of the fan speed of the evaporator, for a pre-set interval, after detecting a specific number of movements.

This function allows to automatize some operations, like switching off the internal light of the refrigerated counter when the store or the restaurant is closed. This will ensure a great energy and costs saving for the business.



2.7 Firmware update

It is possible to update the firmware of the controller by using the Wizmate® software, directly on site, without replacing the controller and avoiding machine stops, which would result in waste of energy and resources. Moreover, it is now offered the opportunity to adjust possible malfunctions in peculiar operating conditions and to update the controller with the latest available versions, thus guaranteeing improved and extra functions.

This operation does not modify the controller configuration and can be performed even without specific technical expertise. A laptop with the software installed and a USB/RS485 converter (e.g., an XJ485USB) will be enough to complete the procedure.



2.8 Double parameter map

Having two parameter maps in one single device translates into reducing the types of articles to purchase, thus optimizing the stock in distributors and installers' warehouse. The possibility to restore the factory default settings – very useful operation in case of mistakes during the programming – allows to automatically re-configure the controller to have it operating again for a subsequent and easier update.

2.9 0÷10Vdc analog output

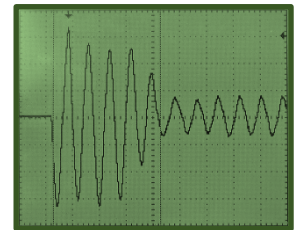
The high-performance hardware ensures great flexibility. As a matter of fact, the 0÷10Vdc analog output can be widely used for multiple applications required in meat hanging cabinets, as well as in ice cream freezers, such as:

- control of electrical variable speed fans (both of evaporator and condenser)
- control of fan speed (both of evaporator and condenser) through the XRPW500 driver
- variation of light intensity (based on pre-set steps)



2.10 Use of “inrush” relays

The XH78T is available also with 3 “Inrush” relays that extend the life of the controller and allow to use loads with a lower energy consumption. This solution is very much appreciated for electrical fans, LED power supply or compressors that require high peaks of current at power on.



2.11 4÷20mA analog input

The controller can use a 4÷20mA humidity probe like the XH10/20P that ensure great precision, fast response to external variations and stability of the sensor also when condensation is present. These characteristics make these probes extremely efficient and reliable in applications where the XH78T is typically used.



2.12 Temperature probes

The controller supports up to 3 temperature NTC, PCT or PT1000 probes with a -100 to +150°C range. Each probe input can be configured independently, allowing, for example, to use both NTC and PT1000 probes simultaneously. This results in an easier and faster maintenance service since a faulty probe could be replaced with a new available one but of a different kind.

2.13 Data Management Cloud ready

The XH78T is compatible with the new “Data Management Cloud” service that allows the user to remotely access data on a Cloud platform through common mobile devices. The auto-detect system installed makes it possible to connect the controller and receive the application data automatically and in few minutes, resulting in time and cost reduction for the installation.



3. Hardware features

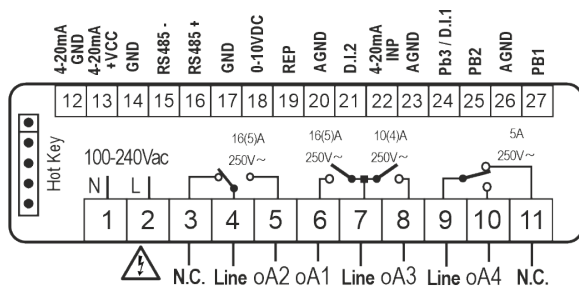
3.1 Features

	XH78T standard	XH78T with Inrush relay
Display	3 digits with decimal point and icons	3 digits with decimal point and icons
Power Supply	100÷240Vac	100÷240Vac
Probe inputs*	3 x NTC/PTC/Pt1000 configurable + 1 x analog input	3 x NTC/PTC/Pt1000 configurable + 1 x analog input
Digital inputs**	Up to 2x configurable	Up to 2x configurable
Relay outputs	16A SPST, 16A SPDT, inrush 10A SPST, 5A SPDT – all configurable	Inrush 16A, 16A SPDT, Inrush 10A SPST, Inrush 10A SPST – all configurable
Hot Key output	Yes	Yes
0÷10Vdc output	Optional	Optional
Serial output	RS485, 2 wires	RS485, 2 wires
Buzzer	Yes, with configurable volume	Yes, with configurable volume
Connectors	Plug-in	Plug-in
Real Time Clock	Optional	Optional

* Up to 3 if the digital input is configured as a probe input.

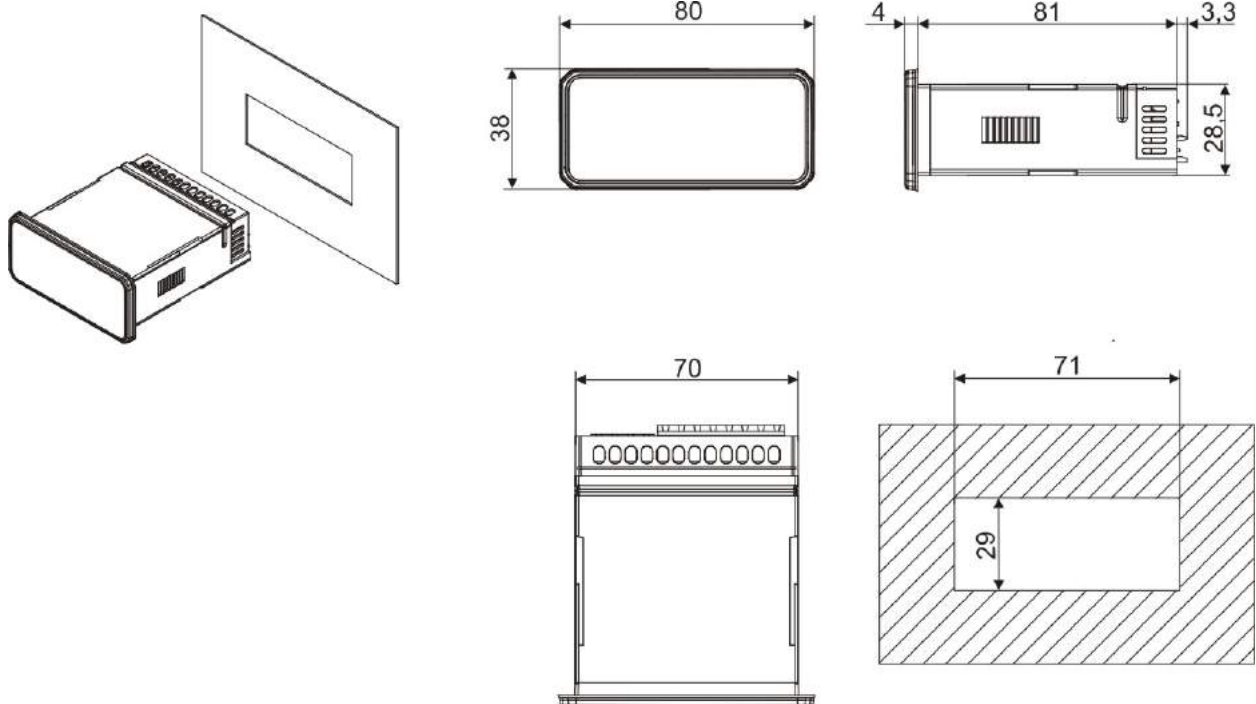
** Up to 2 digital inputs in the 2-temperature probe configuration.

3.2 Wiring diagram






NOTE: in the version with Inrush relay oA4 = Inrush 10A

3.3 Dimensions and cut-out



4. Main accessories

	<p>XH-REP Remote display with CH format</p>
	<p>X-MOD 5V Motion detector with a 2 meter-cable capable of detecting the presence of people near the cabinet</p>
	<p>HOT KEY 64K Key for a quick and easy programming. It is used to upload (from the device memory to the HOT-KEY) and to download (from the HOT-KEY to the device memory) the parameter map.</p>
	<p>XJ485USB-KIT Converter from USB to RS485 (2 wires) which allows to monitor one or more controllers networked to a computer. It is equipped with a galvanic isolation (max isolation voltage 2.5kV on data channels).</p>
	<p>WIZMATE PROG-TOOL KIT Programming tool for controllers and Hot Key. It is recommended using the version 1.3.0 (or later) of Wizmate software, where the re-programming function of the application is included.</p>
	<p>XRPW500 Fan speed controller for single-phase fan speed regulation with 3° triac (700W).</p>

5. How to order

XH78T – 7 C 0 **D** 5 **F** L (standard version)

XH78T – 7 C 0 **D** H **F** L (version with 3 Inrush relays)

D			F	
	Unit of measurement	Real Time Clock		0÷10Vdc Output
A	°C	No	0	No
B	°C	Yes, with lithium battery	2	Yes
D	°F	No		
E	°F	Yes, with lithium battery		

6. Pricing

Please contact our Sales dpt. for product pricing and further information.

7. Availability and orders

The XH78T controller is available with standard delivery time. Please contact our Sales dpt. for further information.