File E164102

Project 12CA15148

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REPORT

On

RECOGNIZED COMPONENT – TEMPERATURE-INDICATING AND REGULATING EQUIPMENT (XAPX2, XAPX8)

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DESCRIPTION

PRODUCT COVERED:

USR, CNR - Component - Humidity and temperature regulating control, Model ETF 0123, followed by 0 or 1, followed by 0, 1 or 9, followed by two numeric digits.

GENERAL CHARACTER:

These devices consist of electronic temperature/humidity regulating thermostat enclosed in a polymeric housing. These devices are provided with two circular adjustment knobs for regulating of temperature in degrees Celsius or Fahrenheit and humidity percentage.

These devices are electronic temperature and humidity controllers for controlling heaters, heat exchangers and cooling fans, which respond to temperature and humidity sensed by a sensing probe internal or external, based on the model type. When sensing probe is external to the device, it is provided as an accessory. A maximum of two loads may be connected which would be switched alternately through a changeover relay. The circuit includes hysteresis function and is designed such that only one load will be on at a time.

These devices, per manufacturer declaration, are intended to be installed inside control panels and secured via DIN rail mounting. These devices are declared as open type devices.

These devices are provided with main terminal block necessary to connect the board to input supply and to the controlled devices. These devices are provided with two potentiometers for setting temperature and humidity levels and are provided with internal temperature/humidity sensors in order to manage output loads accordingly.

The line voltage change over relay output is controlled by one electromechanical relay, SPDT configuration, mounted on the board intended to control external loads like as fans, defrost for ventilation and/or heating functions.

These devices are evaluated as OPERATING, non-safety (Type 1 Action) controls with software class A and to be incorporated in the end use equipment and have not been evaluated for safety or limiting applications.

MODEL DIFFERENCES:

All models covered by this report basically have similar construction, electric schematics and architecture scheme. Unique major difference is the component population of input switching circuits between models rated 100-240 Vac and models rated 24-48 Vdc.

RATINGS (for more information about client declarations for these products refer to the Constructional Data Form, ILL. 1):

Electrical -

INPUTS:

Model	Function	Input Rating	Connector ID	Terminals
ETF 0123x.0-xx ETF 0123x.9-xx	Power Supply	100-240 V ac 50/60 Hz, **1** W	X1	1-2
ETF 0123x.1-xx		24-48 V dc, 1 W May be Line referenced		
ETF 01231.x-xx	Probe	SELV Low Voltage Limited Energy circuit 3.3V 5mA	K1	1-4

Relay OUTPUTS – micro Interruption type 1.C:

ID Connector (Terminal)	Output	Relay	Type of Load	Ratings	Cycles
X1 (3-5)	NO contact	K1 (SPDT)	Resistive	10A, 120/240 Vac	30K
			General Purpose	10A, 120/240 Vac	
X1 (4-5)	NC contact		Resistive	10A, 120/240 Vac	30K
			General Purpose	10A, 120/240 Vac	

Thermal - Maximum ambient operating temperature 60°C.

Pollution Degree - 2 or better

Overvoltage Category - II or better

Software Class - A

NOMENCLATURE SYSTEM DESIGNATION:

ETF 0123	1	.	0	-	00
I	II		III		IV

I. Base series suffix (product line):
Hygrotherm (Moisture and Temperature Regulator) - ETF 0123

II. Version:

0 - with internal sensor
1 - with external sensor (accessory)

III. Supply:

0 - 100-240 V ac 50/60 Hz, %rF/RH and °C (marking on Housing)
9 - 100-240 V ac 50/60 Hz, %rF/RH and °F (marking on Housing)
1 - 24-48 V dc, %rF/RH and °C

IV. Customization, related to process and software personalization version (different lengths of cable for external sensor; variations with differing switch temperature from 0°C to 60°C maximum and differing humidity switching from 50%RH to 90%RH adjustable or preset):

Two numeric digits, from 00 to 30

ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE'S USE):

Use - For use only in products where the acceptability of the combination is determined by UL LLC.

USR indicates evaluation to UL 60730-1, Standard for Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements jointed to UL 60730-2-9, Standard for Automatic Electrical Controls For Household and Similar Use; Part 2: Particular Requirements For Temperature Sensing Controls, and jointed to UL 60730-2-13 Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Humidity Sensing Controls.

CNR indicates investigation to Canadian Standard For Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements CAN/CSA-E60730-1 jointed to Canadian Standard for electrical controls for household and similar use – Part 2-9: Particular requirements for temperature sensing controls CAN/CSA-E60730-2-9.

The unit is for use in an extended environment: 0°C to 60°C. It is not intended for field wiring.

1. The devices shall be installed in compliance with the enclosure, mounting, spacing and segregation requirements of the ultimate enclosure.

2. The ratings, spacings recorded herein shall be judged in the ultimate application.

3. The wiring terminal connections employed in these devices are considered acceptable for factory wiring only. Additional evaluation and testing shall be considered in end use application.

4. These controls have been investigated as Regulating Control and are not capable to reliably provide any type of protective or safety functionality. For other than regulating applications, additional testing and evaluation shall be considered in end use application.

5. These devices are considered as open type devices, no portion of the housing has been evaluated as a reliable fire and electrical enclosure. These devices shall be entirely enclosed in a panel or other type of end-use equipment enclosure. They have not been evaluated for front panel-mounted or installed in the end-use equipment with the front display panel accessible to the user. Additional testing and evaluation shall be considered in the ultimate application.

6. These devices were declared and considered by the manufacturer as INCORPORATED and have been judged for application in Overvoltage Category II and Pollution Degree 2 or better (see construction details for more details). For other end use applications, additional testing and evaluation shall be considered.

Conditions of Acceptability - (cont'd)

7. For models with external probe sensor the secondary side of the SMPS transformer has been evaluated as SELV (Class 2) Power Source, and it is able to provide reinforced insulation between line voltage circuit and probe, therefore sensor probe is connected and located in a SELV (Class 2) circuit. Secondary side of SMPS transformer has been tested to withstand an insulation voltage of 2900V against line voltage circuit. Consideration shall be given in the end use to properly route the sensor cable in order to maintain such insulation.