iWorx by Taco Electronic Solutions

Installation and Troubleshooting

506-013

ALM Alarm Module

SUPERSEDES: New

EFFECTIVE: August 21, 2012

Plant ID: 001-4110

PURPOSE: This guide is a consolidation of important ALM2 & ALM3 information that can be used when installing, commissioning and setting up either controller. It is not meant to replace any other ALM2 or ALM3 documents or drawings.

APPLICATION: The application is for monitoring of heating, ventilating, and air conditioning (HVAC) equipment.

IMPORTANT FACTS

- The inputs of the ALMs can be software configured for digital (Switch) or analog (precon type III thermistors).
- The inputs can be renamed to properly reflect the equipment that they are monitoring.
- The outputs can be used to turn on buzzers, sirens, indicator lights and backup equipment to name a few.
- Only the ALM3 has a configurable delay for alarming.

INSTALLER/ELECTRICIAN CHECKLIST

Task	Verified Yes/No
Ensure that the 24VAC power source is properly connected to terminals 38 & 39 and that the polarity is correct.	
Ensure that terminal 40 GND is connected to a known good earth ground.	
Ensure that the 3 sets of DIP switches are properly set in accordance with the drawing below, installation or application documents. The DIP switches can be accessed by removing the controllers cover. Note the black square for each position indicates the direction the switch needs to be placed.	
Ensure that the 4 sets of jumpers are properly set in accordance with the drawing and your application. The jumpers can be accessed by removing the controllers cover.	
Ensure that the proper wire is used for inputs and the communication trunk. Analog input wiring must be 18 AWG TSP (can also use multi-conductor). Taco part # Wir-018 (1 Pair + shield). Communication wiring must be Echelon approved cable 22 AWG TP. Taco part # WIR-022.	
Ensure that the shielded input wiring is properly grounded. Remember the shield must only be connected at the controller end, at the sensor end it should be cut even with the wire jacket and taped.	
Ensure that the sensors required for this application are properly installed and wired to the controller. Refer to sensor and controller installation sheets or reference.	
If the LCI is connected and powered up, depress the service pin button so that the controller is recognized and added to the LCI's database. This can be verified by logging into the LCI and depressing the Controllers button. The controller appears as Unit*x*_ALM2 or Unit*x*_ALM3, where *x* is the order in which all controllers service pin buttons have been depressed.	

COMISSIONING THE CONTROLLER

After the ALM2 or ALM3 has had all inputs and outputs properly wired, a point-to-point check should be performed to ensure all terminations have been properly made. Use this checklist to verify all inputs and outputs are working correctly and reading properly in the LCI; if a point is not used, simply indicate “not used.”

Steps required for verifying inputs and outputs on the ALM2 & ALM3

To verify the inputs and outputs, login to the LCI and perform the following steps:

1. Press **`Controllers`** from the Home screen.
2. Select the ALM2 or ALM3 from the list of controllers.
3. Press **`All Settings`** and configure the input type as one of the following: Disabled (default), Thermistor, Switch Open or Switch Closed.
4. After all inputs are configured, go back to the previous screen.
5. Press **`Inputs`** and verify that the temperature inputs show realistic temperatures. It is recommended that the temperature sensor be warmed up or cooled down so a response is seen. For digital input switches, the state should be changed.
6. To verify the outputs, press **`All Settings`**.
7. The outputs energize when the switch input changes to the alarm state or a temperature goes above or below the thresholds set.
8. Verify the output has turned on in the Outputs screen.
9. Verify the physical output has turned on.
10. After verification, remember to set the inputs back to the normal state

Inputs	Verified/Initials	Outputs	Verified/Initials
Input 1		Output 1	
Input 2		Output 2	
Input 3		Output 3	
Input 4		Output 4	
Input 5		Output 5	
Input 6		Output 6	
Input 7		Output 7	
Input 8		Output 8	

SETTING UP THE ALM2 OR ALM3 SETTINGS

A description of ALM2 and ALM3 settings can be found in the Application Guide on pages 12 & 13. If a copy of the Application Guide is needed, it can be found at www.taco-hvac.com. Once on the web site, select the *Products* tab and from the drop down list select *iWorx® by Taco Electronic Solutions*. A complete list of links to all documentation is shown on the left side of the web page.

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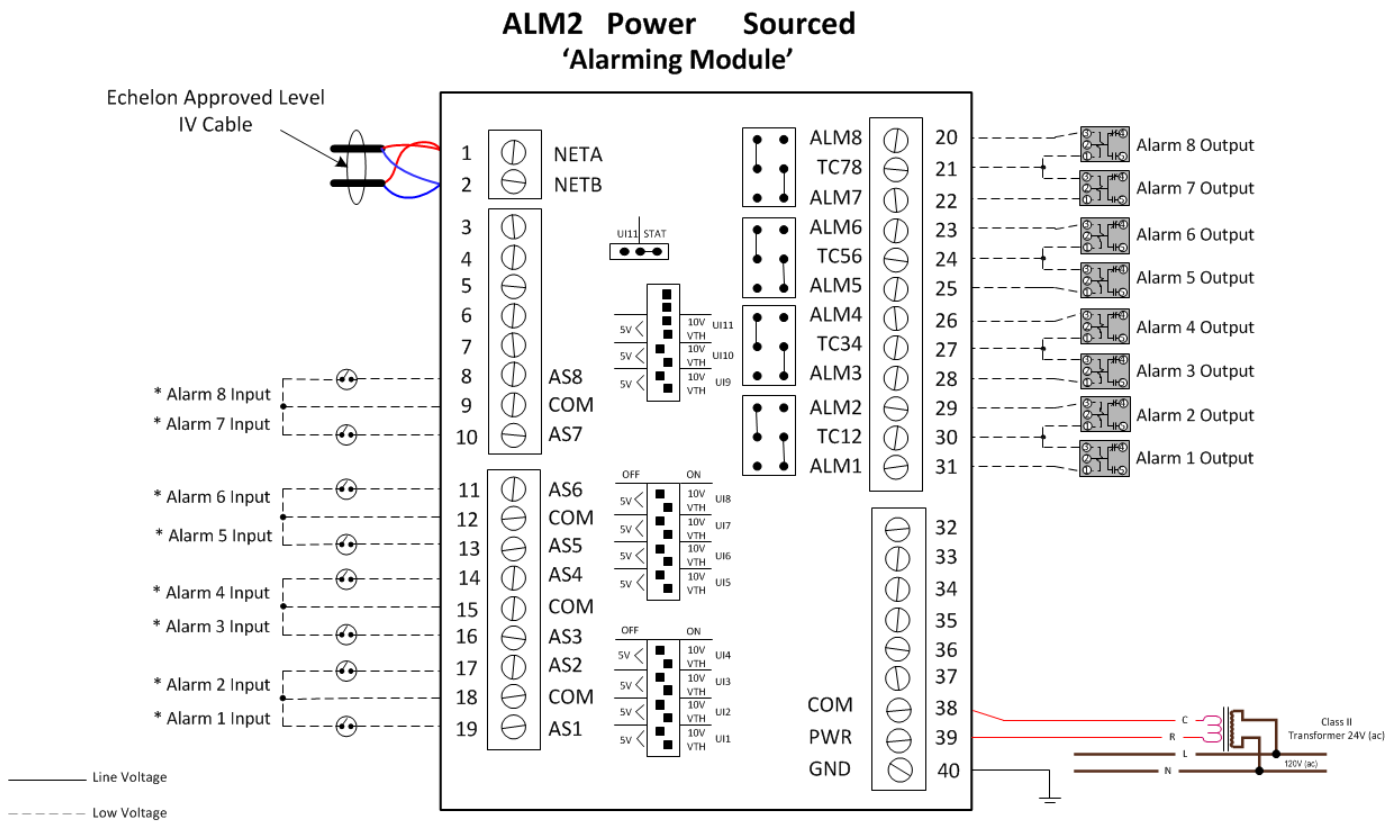
TROUBLESHOOTING & TECHNICAL TIPS

Problem	Solution
Controller is not running and Status LED is not illuminated.	No power to controller. Verify the voltage on the controller's power connector (24 VAC).
How do I reset the controller?	The controller can be reset by the LCI, or you can cycle power to the controller. Refer to the LCI documentation for more information on resetting the controller using the LCI.
A pilot relay will not come on even though the LCI indicates it is on.	Ensure that the controller and output pilot relay have been powered with 24 VAC and the output has been correctly wired to the coil of the pilot relay. Also ensure that the pilot relay has a 24 VAC coil. Ensure that the output jumper is configured for how the output is wired; for example Power Isolated vs Power Sourcing.
A temperature reading is at its minimum or maximum value.	The input is either shorted or open. Check the wiring for the indicated sensor. Ensure that the input switch is in the proper position for dry contact or thermistor.
Thermistor readings fluctuate rapidly, sometimes by several degrees.	The controller may not be properly grounded. The controller's ground (GND) pin (T40) must be connected to earth ground. Also ensure that the controller's digital inputs are dry contacts and that no voltage is being applied or switched to the inputs.
Can I have a different hysteresis for each input?	No, the same hysteresis applies to all analog inputs, as well as to the high and low limits.
An alarm indicator is on when it should be off, and off when it should be on.	Make sure that you are using the correct type of switch (normally open or normally closed) and that the configuration of the input as shown at the LCI matches the type of switch you are using.

TYPICAL ALM WIRED POWER SOURCING



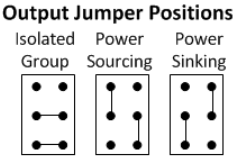
*** Note:**
These are universal inputs. Connect switch or thermistor; dip switch stays in same position

Symbols

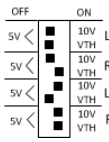
T 10 K ohm Precon Type III thermistor

24VAC pilot relay or contactor coil

Output Jumper Positions



Dip Switch Positions



Left-Left is Invalid
Right-Left is 10K or Digital/Switch
Left-Right is 0-10v
Right-Right is 5v

CONTROLS MADE EASY®

Taco Electronic Solutions, Inc., 1160 Cranston Street, Cranston, RI 02920
Telephone: (401) 942-8000 FAX: (401) 942-2360.

Taco (Canada), Ltd., 8450 Lawson Road, Unit #3, Milton, Ontario L9T 0J8.
Telephone: 905/564-9422. FAX: 905/564-9436.

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Visit our web site at: http://www.taco-hvac.com

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