

# A2336 Dual Fast Analog

The A2336 was designed to provide Fast Analog (4-20mA or 0-16mA) analog control signals for both the Inc (Heat) and Dec (Cool) from either CH1 or CH2 of the JC Systems Model 620(A)/600(A) programmer controllers.

## Important Information:

- Only Loop 1 of the Model 620A/600A provides output information to the A2336 PCB.
- Loop 1 can be assigned to operate from either CH1 or CH2 of the 620(A)/600(A). Loop 1 is accessed and configured from the CH1 controller configuration.
- Loop 1 must be assigned to the appropriate controller Channel in use (CH1 or CH2).
- Loop1 "must" be assigned to CH2 if the Model 620A is configured for the FastTRAC mode of operation.
- Dual operation is available only from LOOP1 of the 620A/600A which will produce both Inc & Dec outputs from the A2336 Board.
- All other selections, Reverse, Direct, 12mA null, Setpoint Retransmit & Process Retransmit will produce an analog output on the Heat (Inc) output pins only. The Cool (Dec) output is disabled.
- Selecting 4-20mA or 0-16mA from the programmer configuration has no effect on the output to the A2336 board. This output selection is made on the A2336 board with jumpers J1 and J3.

## CONFIGURING THE MODEL 620A/600A FOR FAST ANALOG OPERATION:

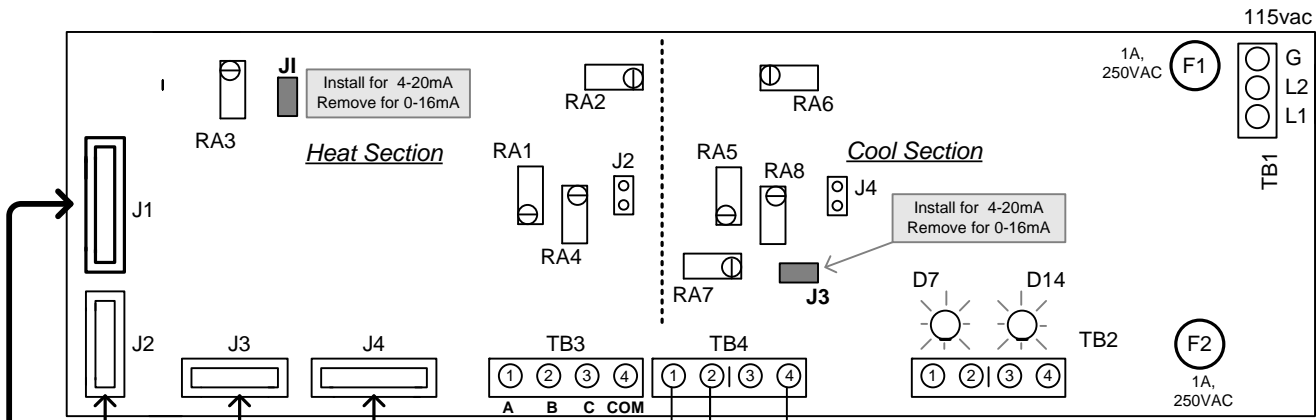
From the Main Menu of the Model 620A/600A:

Select Item # 4	CONFIG_TUNE_CALIB	button <4>	
# 2	CONFIG.CNTRLS/TUNE	<2>	
# 1	CONFIGURE CHANNEL 1	<1>	
PAGE DOWN	OUTPUT CURRENT LOOP1	<PG. DN.>	
SELECT	ASSIGNED TO CHANNEL "X"	<SEL>	Choose CH1 or CH2
DN. ARROW	TWICE TO CONTROL ACTION	<V>, <V>	
SELECT	OUTPUT ACTION	<SEL>	Choose desired output action
			Dual – Dec (TB2 1 & 2), Inc (3 & 4).
			Reverse, Direct, 12mA null, Setpoint or Process Retransmit Output from TB2 3 & 4 only
RESET	TO STOP SCREEN	<RESET>	(Return to STOP screen)



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# A2336 Dual Loop Fast Analog Output PCB



**NOTE:**  
J2, J3, J4 & TB3  
These connections are used only for Sync operation with a second Model 620/600. See Page 4.

**J1:** Fast Analog board input connection from Model 620A/600A, A2225 PCB connector P3. Fast Analog Output from 620A/600A provided only by Loop 1.

**TB4 Pin: Factory installed**  
1 - Cool Enable  
2 - Heat Enable  
3 - NC  
4 - Gnd.  
Relay contacts can be used to enable and disable heat and cool outputs.

**TB2 Pin:** (see note 1 below)  
1 - Cool 4-20mA  
2 - Cool Gnd.  
3 - Heat 4-20mA  
4 - Heat Gnd.

**NOTE 1:**  
Cool output TB2 1 & 2 and Heat output TB2 3 & 4 are operational ONLY when the Model 620A/600A, Loop 1 is configured for DUAL action.

All other Loop 1 output configurations provide an output only on TB2 3 & 4.

Reverse (Heat)  
Direct (Cool)  
12mA null (12 – 20mA heat, 12 – 4mA cool)  
Setpoint Retransmit  
Process Retransmit

**D7 - Cool LED & D14 - Heat LED:**  
Changes in intensity with increase of output. If 4-20mA is selected (J1 or J2 installed) the LED will dimly glow with 0% output.

**OUTPUT TEST:**  
Remove connections from TB2 - 1 & 2 and 3 & 4. Either jumper or place current meter across 3 & 4.

Disconnect ribbon cable from J1. The output will go to 100% (16mA or 20mA) The associated LED, D14 will increase in intensity. This test verifies the board is operational.

Connect the output device(s) to TB2- 1 & 2 and 3 & 4.

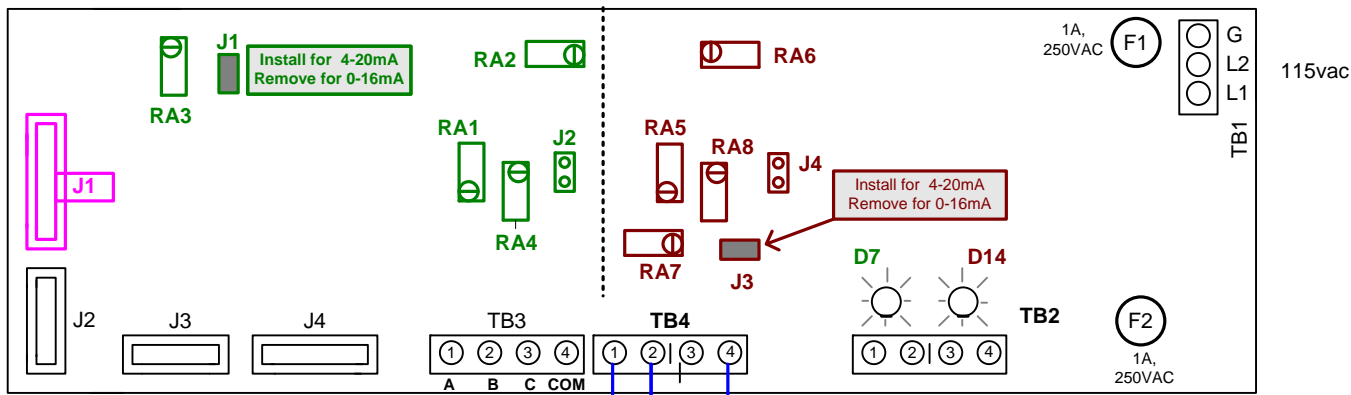
If the A2336 board output tested correctly and the output device(s) do not operate properly check the Loop 1 configuration. See page 2.



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# A2336 Dual Loop Fast Analog Calibration Procedure

This procedure is for dual control. CH1 Loop 1 must be configured for Dual Action.



**TB4 Pin:** (Factory Installed)  
 1 - Cool Enable, 2 - Heat Enable, 3 - NC, 4 - Gnd.  
**NOTE:** TB4 Pins 1 & 2 MUST be shorted to pin 4 as shown to enable heat and cool outputs.

**TB2 Pin:** 1 - Cool 4-20mA 2 - Cool Gnd.  
 3 - Heat 4-20mA 4 - Heat Gnd.

**NOTE 1:** Cool output TB2 1 & 2 is operational ONLY when the Model 620A/600A, Loop 1 is configured for DUAL action.

**D7 - Cool LED & D14 - Heat LED:** If 4-20mA is selected (S1 & S2) LED will dimly glow with 0% output.

## Jumpers J1 - J4

- J1 - Cool On 4-20mA, Off - 0-16mA (TB2: 1 & 2)
- J2 - Cool Slew - On ON, Off OFF (leave Off - open)

- J3 - Heat Out - On 4-20mA, Off - 0-16mA (TB2: 3 & 4)
- J4 - Heat Slew - On ON, Off OFF (leave Off - open)

## Adjustment Pots - RA1 - RA8

- Cool - RA1 - Slope, RA2 - Balance, RA3 - 4mA adj, RA4 - Slew - adj and leave full CCW
- Heat - RA5 - Slope, RA6 - Balance, RA7 - 4mA adj, RA8 - Slew - adj and leave full CCW

**CALIBRATION:** Note: The chamber Heat/Cool outputs must be disabled.

## COOL CALIBRATION

- 1- Connect mA meter to TB2 - 1 (+), 2 (-) Cool.
- 2 - Enter a setpoint that produces 0% Cool output  
Adjust pots, RA1, RA2, RA3 & RA4 fully CCW
- 3 - Remove Jumpers, J1 and J2
- 4 - Adjust Bal Pot RA2 - Cool for a reading of 0.0001mA
- 5 - Install jumper J1 - Cool
- 6 - Adjust 4mA pot RA3 - Cool for a reading of 4.000mA
- 7 - Enter a setpoint that produces 100% Cool output .
- 8 - Adjust Slope Pot RA1 - Cool for a reading of 20mA
- 9 - Repeat steps 6 - 9 until both readings are +/- 0.001mA

## HEAT CALIBRATION

- 1- Connect mA meter to TB2 - 3 (+), 4 (-) Heat.
- 2 - Enter a setpoint that produces 0% HEAT output  
Adjust pots, RA5, RA6, RA7 & RA8 fully CCW
- 3 - Remove Jumpers, J3 and J4
- 4 - Adjust Bal Pot RA6 - Heat for a reading of 0.0001mA
- 5 - Install jumper J3 - Heat.
- 6 - Adjust 4mA pot RA7 - Heat for a reading of 4.000mA
- 7 - Enter a setpoint that produces 100% Heat output .
- 8 - Adjust Slope Pot RA5 - Heat for a reading of 20mA
- 9 - Repeat steps 6 - 9 until both readings are +/- 0.001mA

Calibration is complete.



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# Synchronizing two JC Model 620(A) or 600(A) Programmer/Controllers

**CONNECT SYNCHRONIZED PROGRAMMERS:** (Models 620, 600, 620A & 600A)  
 Two Model 620(A) units can be synchronized using the A2336 Dual Fast Analog PCB as shown below.

To operate two units in sync the function must be enabled from the units programmer configuration. The sync function must be enabled on both units and connected as shown below. Both units will start together after the Run button has been pushed on both units. Stopping (STP) one unit will place the second in Hold (HLD). Pushing the Run button on the unit in STP will restart both units.

**NOTE:**

If a Model 620(A) is not connected to another unit as shown below the Sync function in the programmer configuration must be disabled or the unit will not run.  
 (See write-up on "Front Panel Lockout in Sync Mode")

You **MUST** remove power from the Model 620(A)'s and Sync board when connecting or disconnecting the sync cabling.

