Model 620A
Maintenance and Calibration

CAUTION!

See Ch 7 Pg 2, 2A & 2B below prior to connecting inputs to TB1 of the A2216 PCB.
Determine Rev. of the A2216 board on the Model 620/620A for correct input connections.
Failure to do so may result in errors in calibration or *damage* to the unit!

DO NOT enter "Calibration" mode unless or until:
You have read the calibration section of the manual.
A calibrated input source is connected to the unit (The chamber Heat/Cool MUST be disabled during calibration), and a re-calibration of the unit is intended.

PREVENTIVE MAINTENANCE

Cleaning

Regularly dust outside surfaces and keep the Model 620A interior free of dust, debris and moisture.

Calibration:

It is recommended to calibrate the unit annually.

Lithium battery:

Replace the battery every 5 years.

CALIBRATE CONTROLLER:

The controller is factory calibrated prior to shipping.
Perform any subsequent calibration by using the appropriate calibration procedure for the configuration of the specific unit being calibrated.

INPUT CALIBRATION PROCEDURES IN THIS SECTION:

1 - Thermocouples on one or both channels (2 pages)RTD (100 ohm). (1 page)
2 - RH/WB - Wet Bulb / Dry Bulb direct %RH
3 - Linear input 4-20mA for 0-100% RH (CH2 Only). (1 page)
4 – Linear input 0-5.0 vdc for 0-100 (CH2 Only). (1 page)
5 - Vaisala Model HMM30C RH Sensor 0.0 to 5.0 VDC input (CH2 Only). (2 page)
6 - FT_PSIA15 (Omega PX41T0-15AI, Altitude sensor) 4-20mA (CH2 Only). (1 page)
7 - FT_PSIA20 (Omega PX41T0-20AI, Altitude sensor) 4-20mA (CH2 Only). (1 page)

OUTPUT (CURRENT LOOP) CALIBRATION:

Loop 1 (ANA 1) and Loop 2 (ANA 2), (See Fig. 7-1, CH 7 Pg 2 & Fig 7-1-A CH 7 Pg 2-A

ACCESS CODE:

If you are prompted for an access code when Item 4 is selected from the Main Menu, enter the code. If you do not know the code or if it was forgotten contact JC Systems Products by TMC Services at 763-241-1456, provide them with the reference code found on the last field of line four of the display and they will unscramble the number and provide the current code.

A2216 REV. A - D - REAR INTERCONNECT PCB

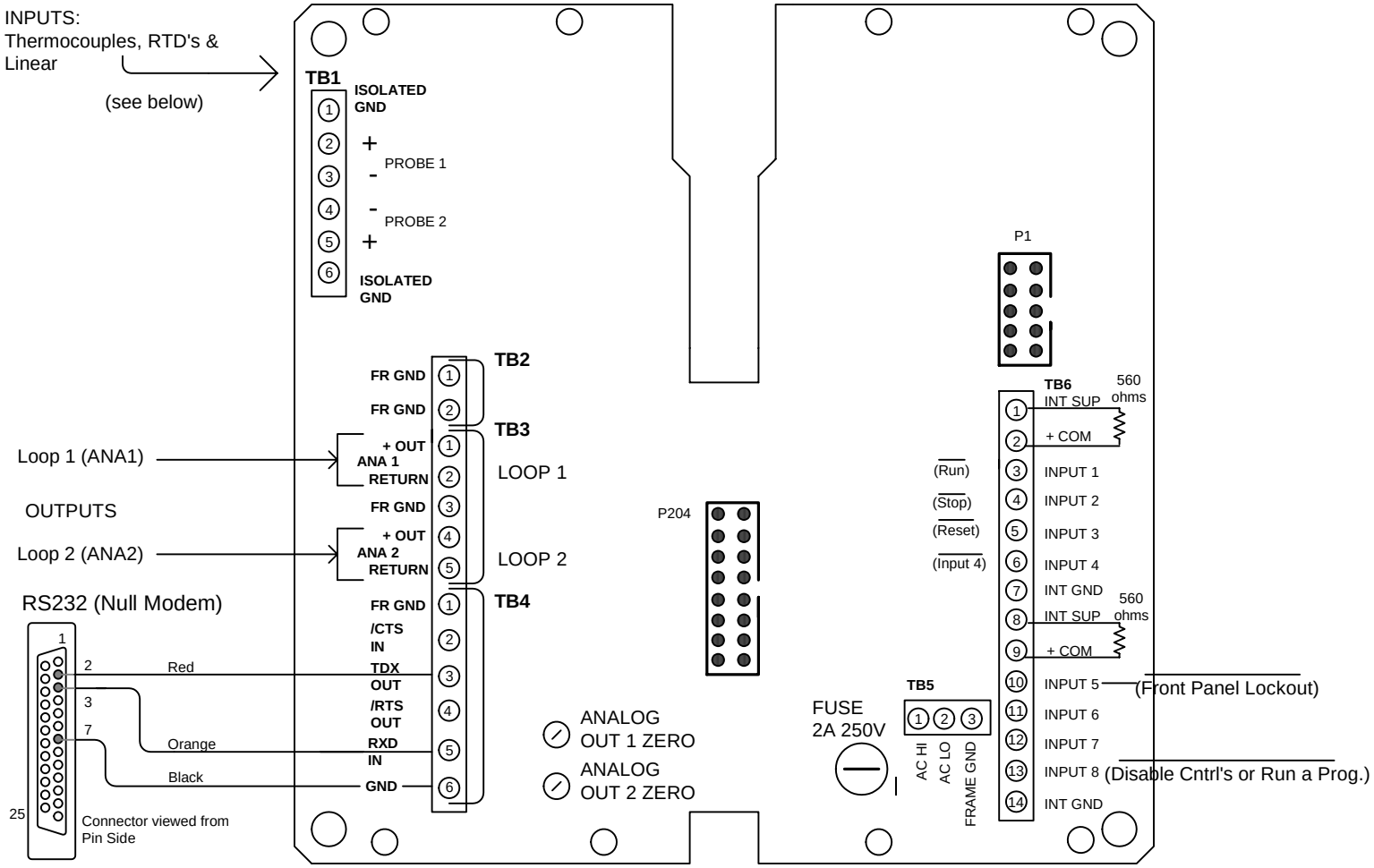
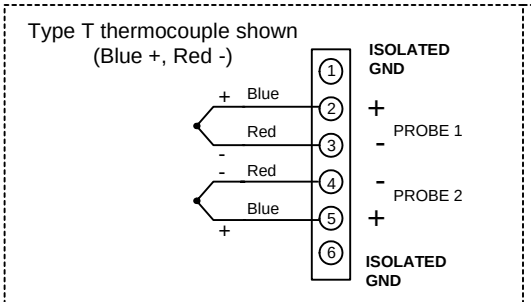
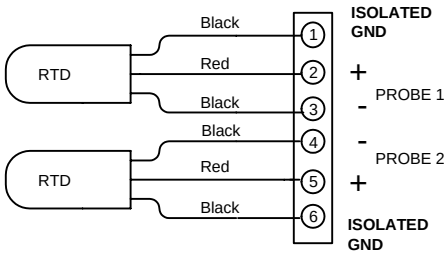


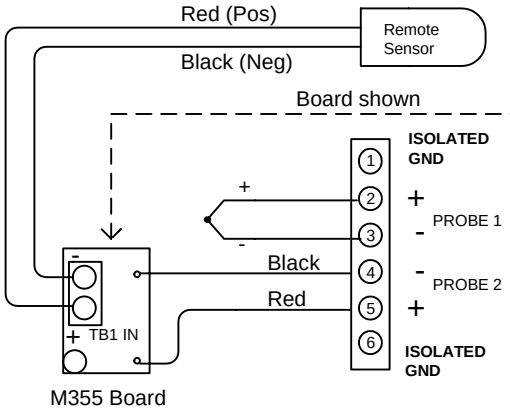
Figure 7-1



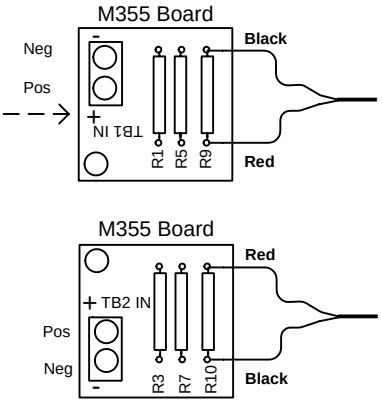
Thermocouple Hook up



Three Wire RTD (100 ohm)
Note: For 2 wire RTD's install
a jumper between pins 1 & 3, (4 & 6)



M355 Board



Two different M355 boards are supplied for the units.
Check with dwg. on right for which one you have.

M355 Boards available:
- 4 - 20mA
- 0 - 5 VDC
- 1 - 5 VDC
- 0 - 10 VDC
- 1 - 10 VDC

M355 INPUT BOARD

A2216 REV. E - REAR INTERCONNECT PCB

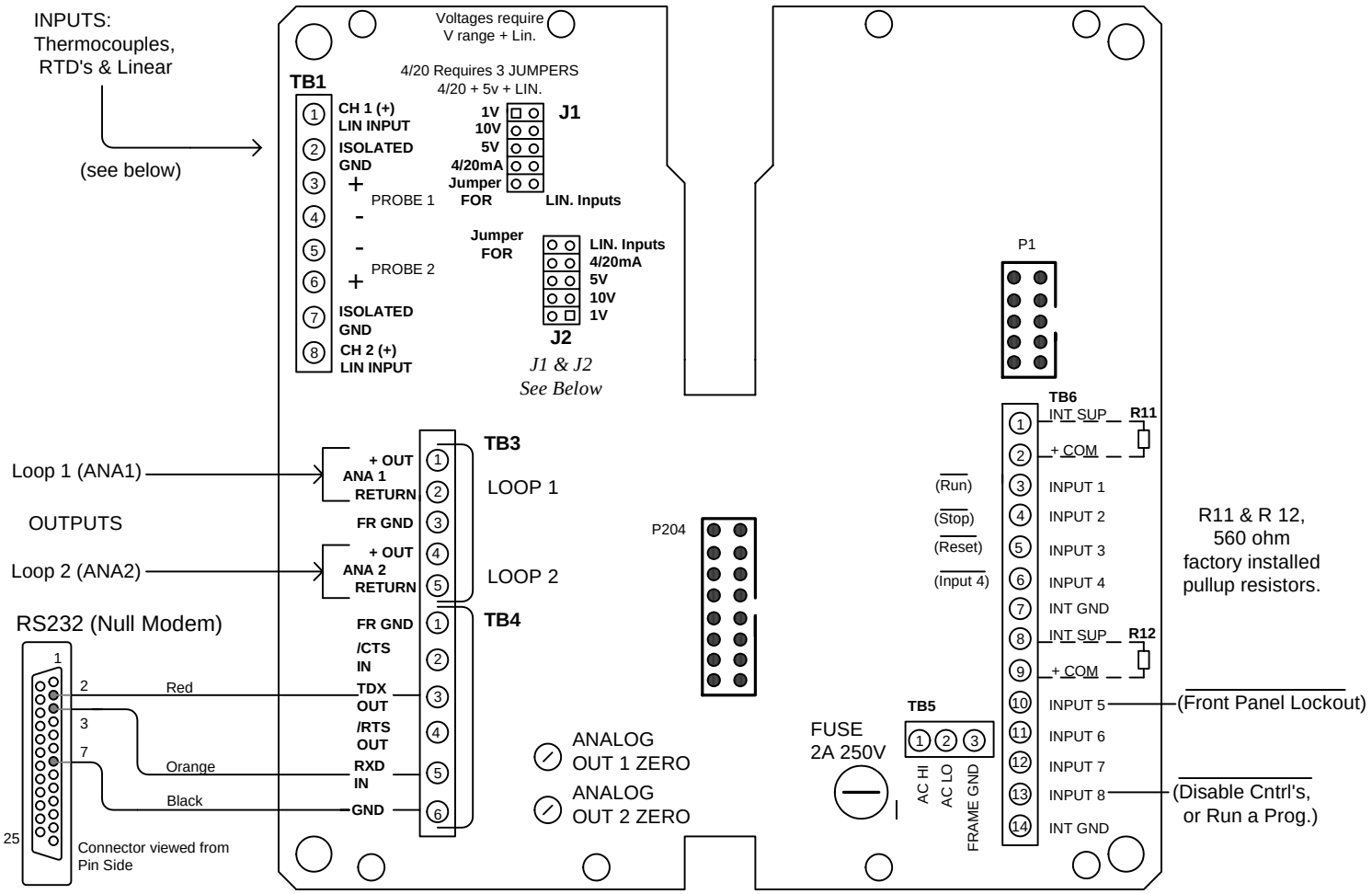
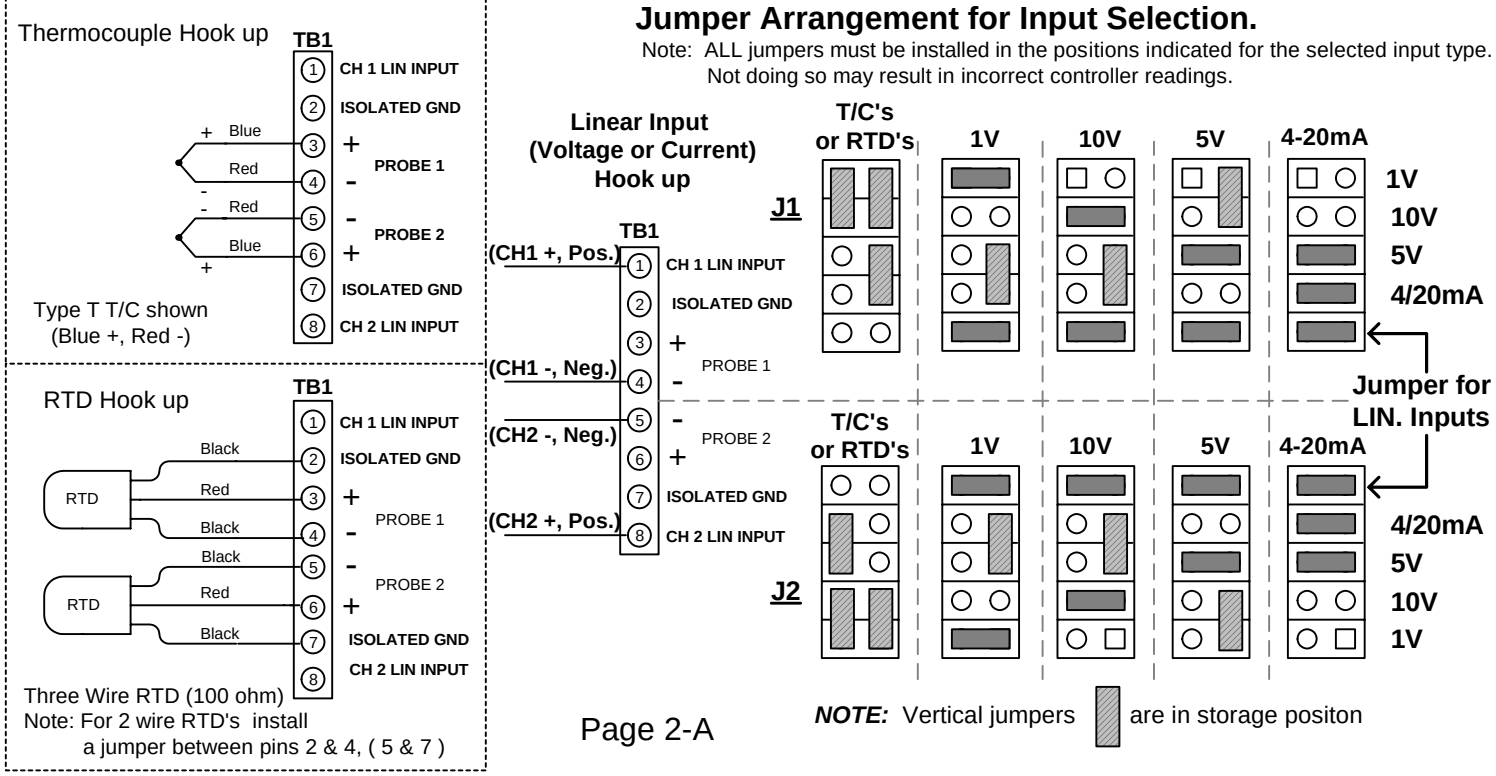


Figure 7-1-A

Jumper Arrangement for Input Selection.

Note: ALL jumpers must be installed in the positions indicated for the selected input type. Not doing so may result in incorrect controller readings.

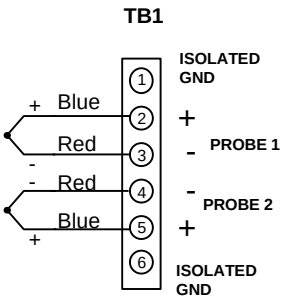


IMPORTANT !

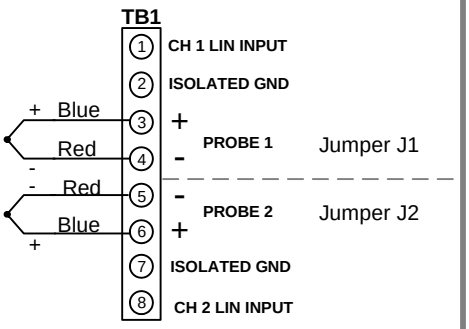
The A2216 Rear Interconnect Board TB1 Input Terminal Block and Pin assignments have changed. Please note the differences below on the new "E" version.

Thermocouple Hook up

A2216 Rev. A, B, C & D



A2216 Rev. E



Type T Thermocouple shown

The following input types are jumper selectable:
T/C or RTD, 1V, 10V, 5V & 4/20mA.

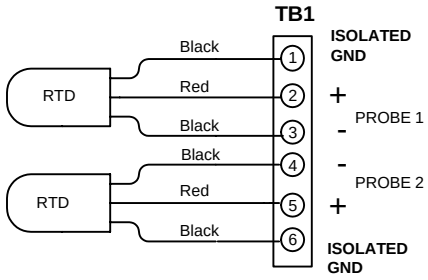
See manual Ch 7 Pg 2-A.

A jumper diagram is also located on the back of the A2225 Output Interface Board mounted on the rear of the unit.

NOTE: If a new input type is selected it is mandatory to select the proper controller configuration and verify or recalibrate the controller.

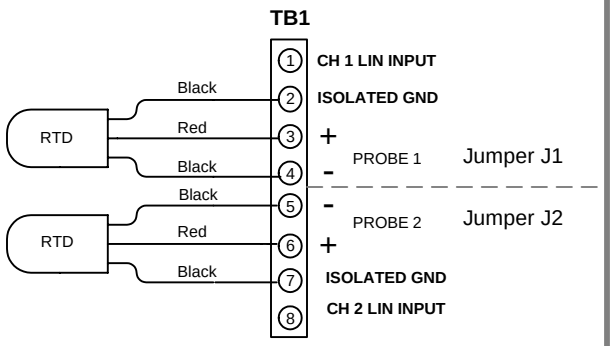
RTD Hook up

A2216 Rev. A, B, C & D



Note: For 2 wire RTD's install
a jumper between pins 1 & 3, (4 & 6)

A2216 Rev. E



Note: For 2 wire RTD's install
a jumper between pins 2 & 4, (5 & 7)

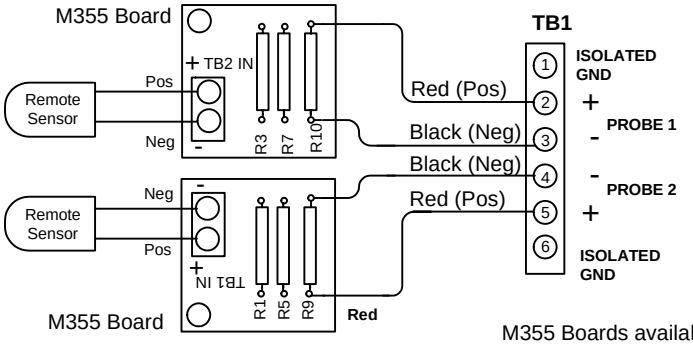
CAUTION!

ALL jumpers ***MUST*** be installed in the positions indicated for the selected input type.
Not doing so will result in incorrect controller readings.

Linear Input Hook up

(Voltage or Current)

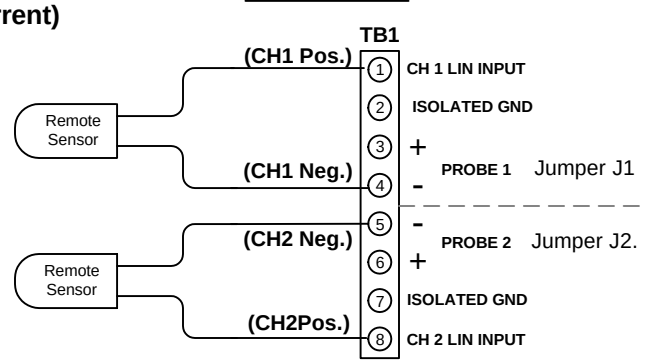
A2216 Rev. A, B, C & D



Two different M355 boards are supplied for the units. Make sure the board in use is hooked up properly.

M355 Boards available:
- 4 - 20mA
- 0 - 5 VDC
- 1 - 5 VDC
- 0 - 10 VDC
- 1 - 10 VDC

A2216 Rev. E



See manual Ch 7 Pg 2-A for available linear inputs and jumper arrangements.

Document: Model_620A_600A_Calibration Revision: 8/5/2009

MODEL 620A INPUT CALIBRATION FOR TC\TC ON BOTH CHANNELS

EQUIPMENT REQUIRED:
Thermocouple calibration standard (calibrator) such as a Fluke 701.

Both channels use the same Cold Junction. The Cold junction calibration is performed only once at the beginning of the calibration sequence. Prior to calibration it is recommended that the unit be turned on for at least 2 hours to allow the cold junction device to settle in to it's ambient operating temperature.

NOTE: See CH7 Pg 2, 2A & 2B for A2216, TB1 input connections. 620 (Rev A – D), 620A (Rev E)

Prior to calibration enter the CH1 & CH2 CONTROLLER CONFIGURATION and set the LO_PASS Input filter to "0". After calibration is complete return this setting to it's original value.

DETERMINE THE COLD JUNCTION TEMP.

Note: The Cold Junction is only used for thermocouple inputs. The CJ is not used when RTD, Linear mV, Linear mA are selected.
If the current unit calibration is within 3 deg. use procedure A.
If it is not within 3 deg. over the temp. range use procedure B.

A. Using a piece of copper wire jumper TB1 pins + & - for Probe 1 (CH1 input).
Read and record the CH1 Process value. This value will be used for the Cold Junction (CJ) and the CH1 & CH2 LO calibrations.

B. Set the calibrator to measure mode. Connect a thermocouple from the calibrator to TB1 pin for Probe 1 - (CH1 -). This TC should be constructed so the TC junction is secured in the TB1 location without any junctions in the free air. This will create a false CJ reading.
Read and record the Calibrator measured value. This value will be used for the Cold Junction (CJ) and the CH1 & CH2 LO calibrations.

ACCESS INPUT CALIBRATION:

Push	**<STOP>, <RESET>, <PAGE DOWN>**	(To access Main Menu)
Push	**<4>**	(CONFIG-TUNE-CALIB)
Push	**<3>**	(CALIBRATE INPUTS)
Push	**<PAGE DOWN>**	(COLD JUNCTION cal.)

COLD JUNCTION CALIBRATION:

At the, "**CJ_TEMP.=**", prompt, enter the CJ value previously recorded.
Push **<ENTER>**, Wait 5 to 10 seconds.
Push **<PAGE DOWN>**, The cold junction is now calibrated.

CH1 & CH2 LOW AND HI INPUT CALIBRATION:

If both channels are being calibrated for TC. Using a short piece of Thermocouple extension wire parallel the CH1 and CH2 inputs on TB1 (Probe 1 (+) to Probe 2 (+) and Probe 1 (-) to Probe 2 (-).

Using a thermocouple extension wire connect the calibrator to TB1 Probe 1 (+) and Probe 2(-).
Both channels are now in parallel with the calibrator and receive the same input.
Set the calibrator to the output mode. Set the calibrator output to the previously recorded Cold Junction value.

The upper right hand display will always indicate the current process value for the selected channel.

NOTE: For single channal calibration switch only between CHx LO and CHx HI.

CH1 LO:

Set the calibrator output to the previously recorded ***Cold Junction value.***
At the "**CH1_LO_ACTUAL:"** prompt, enter the calibrator setting via the 620A\600A numerical keypad.
Push **<ENTER>**, observe the upper right hand display until it reads the value entered.
Push **<PAGE DOWN>, <PAGE DOWN>, <PAGE DOWN>** (CH2_LO_ACTUAL)

CH2 LO:

At the "**CH2_LO_ACTUAL:**" prompt, enter the calibrator setting via the 620A\600A numerical keypad.
Push **<ENTER>**, observe the upper right hand display until it reads the value entered.
Push **<PAGE DOWN>** (CH2_HI_ACTUAL)

CH2 HI:

Set the calibrator output to ***200 deg. C.***
At the "**CH2_HI_ACTUAL:**" prompt, enter 200 via the 620A\600A numerical keypad.
Push **<ENTER>**, observe the upper right hand display until it reads the value entered.
Push **<PAGE UP>, <PAGE UP>, <PAGE UP>** (CH1_HI_ACTUAL)

CH1 HI:

At the "**CH1_HI_ACTUAL:**" prompt, enter 200 via the 620A\600A numerical keypad.
Push **<ENTER>**, observe the upper right hand display until it reads the value entered.
Push **<RESET>**

Verify calibration by running the calibrator up and down the scale and observe the CH1 and CH2 process displays for accurate tracking.

Calibration is complete if both channels track properly.

If both channels do not track properly:

Push **<PAGE DOWN>, <4>, <3>, <PAGE DOWN>, <PAGE DOWN>** (CH1 LO_ACTUAL)
Re-calibrate CH1 & CH2 LO and HI Input calibration.
Don't forget to set the LO_PASS Input Filter to it's original value.

MODEL 620A INPUT CALIBRATION FOR 100 ohm RTD ONLY

***EQUIPMENT REQUIRED*:** Precision Decade resistance box.
There is no Cold Junction calibration performed for RTD units.
Prior to calibration it is recommended that the unit be turned on for at least 2 hours to allow it to stabilize to ambient operating temperature.

NOTE: See CH7 Pg 2, 2A & 2B for A2216, TB1 input connections. 620 (Rev A – D, 620A Rev E)

Prior to calibration, from the CH1 & CH2 CONTROLLER CONFIGURATION set the LO_PASS Input filter to "0". After calibration return setting to it's original value.

The upper right hand display will always indicate the current process value for the selected channel.
After pushing the ***<ENTER>*** button for each input calibration (Wait) and observe the upper right hand display until it is stable and reads the value entered.

ACCESS INPUT CALIBRATION:

Push	**<STOP>, <RESET>, <PAGE DOWN>**	(To access Main Menu)
Push	**<4>**	(CONFIG-TUNE-CALIB)
Push	**<3>**	(CALIBRATE INPUTS)
Push	**<PAGE DOWN>**	(COLD JUNCTION cal.)
Push	**<PAGE DOWN>**	(CH1_LO ACTUAL)

CH1 LOW AND HI INPUT CALIBRATION:

Connect the decade box to the CH1 TB1 inputs, (+), (-) and jumper (-) to Isolated Gnd pin.
Set the decade box output to **100.00 ohms (0.0 deg. C).**
At the "**CH1_LO_ACTUAL:"** prompt, enter **0.0** via the numerical keypad.
Push **<ENTER>**, (Wait) then
Push **<PAGE DOWN>,** (CH1_HI_ACTUAL)

Set the decade box output to **212.01 ohms (300.0 deg. C).**
At the "**CH1_HI_ACTUAL:**" prompt, enter **300.0** via the numerical keypad.
Push **<ENTER>**, (Wait) then
Push **<PAGE DOWN>,** (CH2_LO_ACTUAL)

CH2 LOW AND HI INPUT CALIBRATION:
Connect the decade box to CH2 TB1 inputs, (-) and jumper (-) to Isolated Gnd pin.
Set the decade box output to **100.00 ohms (0.0 deg. C).**
At the "**CH2_LO_ACTUAL:"** prompt, enter **0.0** via the numerical keypad.
Push **<ENTER>**, (Wait) then
Push **<PAGE DOWN>,** (CH2_HI_ACTUAL)

Set the decade box output to **212.02 ohms (300.0 deg. C)**.
At the "**CH2_HI_ACTUAL:**" prompt, enter **300.0** via the numerical keypad.
Push **<ENTER>**, (Wait) then
Push **<RESET>** Return to Home **(STOP)** screen

Verify calibration by running the decade box up and down the scale and observe the CH1 and CH2 process displays for accurate tracking. If both channels track OK. Calibration is complete.
Don't forget to set the LO_PASS Input Filter to it's original value.

MODEL 620A Relative Humidity - Wet Bulb / Dry Bulb Direct %RH
RTD RH/WB & TC-RH/WB

NOTE:

DO NOT ATTEMPT TO CALIBRATE THE CONTROLLER WITH CH2 CONFIGURED FOR RH\WB.
This will result in inaccurate %RH calculations.

The Model 620A can be configured to operate in the ***RH\WB*** Wet Bulb\Dry Bulb direct %RH mode of operation.

When this configuration is used, the unit internally calculates the direct 0.0 to 100 %RH based on the temperature differential between CH1 (Dry Bulb) and CH2 (Wet Bulb).

Both CH1 and CH2 ***MUST*** be calibrated for temperature for accurate RH calculations.

The following procedure ***MUST*** be used when calibrating an ***RTD/RTD*** or ***TC/TC*** Model 620A/600A for use as a Wet Bulb/Dry Bulb ***(RH/WB)***humidity controller.

1. Change CH2 configuration from ***RH/WB*** to ***DEG. C*** (*or F*).
   DO NOT change the CH2 Span. The Span has nothing to do with controller calibration.

2. Follow the calibration procedure for the MODEL 620A\600A INPUT TYPE CALIBRATION FOR RTD (100 OHM), or TC/TC.

3. ***After*** the calibration is complete return CH2 configuration to ***RH/WB***. The unit will now internally calculate the correct value of %RH based on the Wet Bulb/Dry Bulb differential temperatures.

MODEL 620A INPUT CALIBRATION FOR CHANNEL 2 ONLY FOR LINEAR INPUT OF 4-20 mA FOR 0 - 100

EQUIPMENT REQUIRED: 4-20mA CURRENT SOURCE TO PROVIDE INPUT TO CH2.

NOTE: See CH7 Pg 2, 2A & 2B for A2216, TB1 input connections. 620 (Rev A – D), 620A (Rev E)

ACCESS INPUT CALIBRATION: **NOTE: ONLY PUSH <ENTER> WHEN INSTRUCTED.**

Push <STOP>, <RESET>, <PAGE DOWN> (To access Main Menu)
<4> (CONFIG-TUNE-CALIB)
<3> (CALIBRATE INPUTS)
<PAGE DOWN> 5 times to CH2 LO_ACTUAL SCREEN

Connect the current source output to the appropriate TB1 Probe 2 (-), and CH2 (+) pins.
Set the output of the source to 4.0MA.

At the CH2 LO_ACTUAL: CALIBRATOR SETTING prompt, enter 0 from the keypad.
Push <ENTER>
Wait 10 seconds.

Push <PAGE DOWN>

Set the current source output to 20.0MA.
At the CH2 HI_ACTUAL: CALIBRATOR SETTING. prompt, enter 100 from the keypad.

Push <ENTER>
Wait 10 seconds.

Run the calibrator up and down to produce an output between 4 & 20 MA.
The following correlation should occur:

MA input to CH2	Actual reading on CH2
4.0	0.0
8.0	25.0
12.0	50.0
16.0	75.0
20.0	100.0

Push <RESET>, this will return you to the HOME (STOP) Screen.

MODEL 620A INPUT CALIBRATION FOR CHANNEL 2 ONLY FOR LINEAR INPUT OF 0-5 vdc FOR 0 - 100

EQUIPMENT REQUIRED: 0-5 vdc VOLTAGE SOURCE TO PROVIDE INPUT TO CH2.

NOTE: See CH7 Pg 2, 2A & 2B for A2216, TB1 input connections. 620 (Rev A – D), 620A (Rev E)

ACCESS INPUT CALIBRATION: **NOTE: ONLY PUSH <ENTER> WHEN INSTRUCTED.**

Push <STOP>, <RESET>, <PAGE DOWN> (To access Main Menu)
<4> (CONFIG-TUNE-CALIB)
<3> (CALIBRATE INPUTS)
<PAGE DOWN> 5 times to CH2 LO_ACTUAL SCREEN

Connect the voltage source output to the appropriate TB1 Probe 2 (-), and CH2 (+) pins.
Set the output of the source to 0.0 vdc.

At the CH2 LO_ACTUAL: CALIBRATOR SETTING prompt, push 0 on the keypad.
Push <ENTER>
Wait 10 seconds.

Push <PAGE DOWN>

Set the current source output to 5.00 vdc.
At the CH2 HI_ACTUAL: CALIBRATOR SETTING. prompt, push 100 on the keypad.

Push <ENTER>
Wait 10 seconds.

Run the calibrator up and down to produce an output between 0.0 & 5.0 vdc.
The following correlation should occur:

VDC input to CH2	Actual reading on CH2
0.00	0.0
1.25	25.0
2.50	50.0
3.75	75.0
5.00	100.0

Push <RESET>, this will return you to the HOME (STOP) Screen.

MODEL 620A CHANNEL 2 INPUT CALIBRATION FOR VAISALA MODEL HMM30C RH SENSOR 0.0 TO 5.0 VDC INPUT

EQUIPMENT REQUIRED: 0.0 to 5VDC VOLTAGE SOURCE TO PROVIDE INPUT TO CH2.
Thermocouple extension wire or jumper for CH1 input.

NOTE: The TB1 input connections are CH1 Probe1 (+), Probe1 (-) and CH2 Probe2 (-), Probe2 (+) or CH 2 LIN INPUT.
There may be an external M355 input board connected to CH2. If so, the voltage input is connected to the M355 board.
Otherwise make sure the J2 Input jumper is configured for the 5V selection
The TC extension wire or jumper must be connected across TB1 CH1 Probe 1 (+) and Probe 1 (-) for the channel 2 process variable to read correctly when the controller is out of the calibration mode.

NOTE: If the channel 1 process is not reading between **-40 to +160 deg. C** (operating range of the Vaisala sensor), the CH2 process will display **ErrRH** and KILL the controllers.

Connect the TC extension wire or jumper to TB1 CH1 Probe 1 (+) and Probe 1 (-).
Connect the voltage source output to TB1 CH2 input pins or the M355 bd.

CONFIGURE UNIT FOR CALIBRATION:

From the MAIN MENU
Push **<4>** (Config Tune\Calib)
Push **<2>** (Config Contrls\ tune)
Push **<2>** (Config CH2)

If the **CH2 UNITS** are not set for **LINEAR**:
Push **<SEL>** for **LINEAR** (Else)
Push **<DOWN ARROW>**

If **INPUT** is not set for **LINEAR MV:**
Push **<SEL>** for **LINEAR MV** (Else)
Push **<DOWN ARROW>**

If **SPAN - SETPOINT** is not set for Max **105**, Min **-5**
Input 105 for Max value from keypad (then)
Push **<RIGHT ARROW>**
Input -5 for Min value from keypad

ENTER CHANNEL 2 CALIBRATION:

NOTE: ONLY PUSH <ENTER> WHEN INSTRUCTED.

Push **<PAGE UP>**
Push **<PAGE UP>**
Push **<3>** (Calibrate Inputs)
Push **<PAGE DOWN>** (Cold Junction)
Push **<PAGE DOWN>** (CH1_LO ACTUAL)
Push **<PAGE DOWN>** (CH1_HI ACTUAL)
Push **<PAGE DOWN>** (CH2 Status Screen)
Push **<PAGE DOWN>** (CH2_LO ACTUAL)

Set the output of the voltage source to **0.0 VDC**.

At the **CH2 LO_ACTUAL: CALIBRATOR SETTING**. prompt,
Push" **0.0**" on the keypad.
Push **<ENTER>**
Wait 10 seconds.
Push **<PAGE DOWN>**

Set the voltage source output to **5.0 VDC**.

At the **CH2 HI_ACTUAL: CALIBRATOR SETTING**. prompt,
Push **100.0** on the keypad.
Push **<ENTER>**
Wait 10 seconds.

Push **<PAGE DOWN>**
Push **<2>** (Config Contrls\Tune)
Push **<2>** (Config CH2)
Push **<SEL>** (For RH_VAISALA)
Push **<RESET>** (To HOME -STOP Screen)

Calibration is complete.

Changing the channel 2 input value from 0 to 5vdc varries the process reading between 0 to 100 %. This is NOT a linear relationship. ie. 2.5 vdc may not equal to 50. With the temperature compensation built into the unit there will be a minor non-linear relationship between the voltage input and the process display. This is correct.

NOTE: Whenever a new *Input Type* is selected from the *Controller Configuration*, the controller outputs will be disabled.
If the *Current Loop* outputs are selected for *Setpoint or Process Retransmit* they will latch on the last output value they were at when the new Input Type was selected.
To reactivate the outputs, it is necessary for the controller to receive a new setpoint either from the Manual Mode or by running a program.

Model 620A Altitude calibration FT_PSIA15 (15 PSIA) for Omega PX41T0-15AI (4-20mA)

This Calibration sequence is for Channel 2. If Channel 1 is being used follow the same sequence setting the values for the Channel 1 configuration and calibration.

NOTE: See CH7 Pg 2, 2A & 2B for A2216, TB1 input connections. 620 (Rev A – D), 620A (Rev E)

Set Channel 2 Controller Configuration:

Push	*<STOP>, <RESET>, <PAGE DOWN>*	*(To access Main Menu)*
	<4>	*(CONFIG-TUNE-CALIB)*
	<2>	*(CONFIG_CNTRLS\TUNE)*
	<2>	*(CONFIGURE CHANNEL 2)*

Using the arrow keys to move the cursor to the appropriate item and the <SEL> key to select the appropriate choice, set up the controller channel as follows:

Channel 2:	*Units -*	*FT_PSIA15 (Omega Model PX41T0-15AI)*
	Input	*MA*
	Hi Span value	*160.0*
	Lo Span value	*-1.0*

ACCESS INPUT CALIBRATION: ***NOTE: ONLY PUSH <ENTER> WHEN INSTRUCTED.***

Push	*<STOP>, <RESET>, <PAGE DOWN>*	*(To access Main Menu)*
	<4>	*(CONFIG-TUNE-CALIB)*
	<3>	*(CALIBRATE INPUTS)*
	<PAGE DOWN> 5 times to	*CH2 LO_ACTUAL SCREEN*

Connect the current source to the appropriate channel's input on TB1.

CH2 LO:	*Set calibrator output (controller input) current to* ***4.000 MA.***
	Input ***4.0*** *at the calibrator input prompt,*
	Push <ENTER>.
	Wait 10 sec.
	The upper right hand display will show ***200.0A***
	Push <PAGE DOWN>

CH2 HI:	*Set calibrator output (controller input) current to* ***20.000 MA.***
	Input ***20.0*** *at the calibrator input prompt,*
	Push <ENTER>.
	Wait 10 sec.
	The upper right hand display will show ***-.7A*** *(Prom Ver 2.27 or earlier will display -.5)*
Push	*<RESET>*
Push	*<RESET> (Return to Home Screen)*

The Climb output (Vacuum pump, alt. increase in FT.) is connected to the controller INC output.
The Dive output (Evacuate chamber, alt. decrease in FT.) is connected to the controller DEC output.

Model 620A Altitude calibration FT_PSIA20 (20 PSIA) for Omega PX41T0-20AI (4-20mA)

This Calibration sequence is for Channel 2. If Channel 1 is being used follow the same sequence setting the values for the Channel 1 configuration and calibration.

NOTE: See CH7 Pg 2, 2A & 2B for A2216, TB1 input connections. 620 (Rev A – D), 620A (Rev E)

Set Channel 2 Controller Configuration:

Push	*<STOP>, <RESET>, <PAGE DOWN>*	*(To access Main Menu)*
	<4>	*(CONFIG-TUNE-CALIB)*
	<2>	*(CONFIG_CNTRLS\TUNE)*
	<2>	*(CONFIGURE CHANNEL 2)*

Using the arrow keys to move the cursor to the appropriate item and the <SEL> key to select the appropriate choice, set up the controller channel as follows:

Channel 2:	*Units -*	*FT_PSIA20 (Omega Model PX41T0-20AI)*
	Input	*MA*
	Hi Span value	*160.0*
	Lo Span value	*-10.0*

ACCESS INPUT CALIBRATION: ***NOTE: ONLY PUSH <ENTER> WHEN INSTRUCTED.***

Push	*<STOP>, <RESET>, <PAGE DOWN>*	*(To access Main Menu)*
	<4>	*(CONFIG-TUNE-CALIB)*
	<3>	*(CALIBRATE INPUTS)*
	<PAGE DOWN> 5 times to	*CH2 LO_ACTUAL SCREEN*

Connect the current source to the appropriate channel's input on TB1.
CH2 input pins 4 (-) and 5 (+), CH1 input pins 2(+) and 3 (-).

CH2 LO: *Set calibrator output (controller input) current to **4.000 MA.***
*Input **4.0** at the calibrator input prompt,*
Push <ENTER>.
Wait 10 sec.
*The upper right hand display will show **200.0A***
Push <PAGE DOWN>

CH2 HI: *Set calibrator output (controller input) current to **20.000 MA.***
*Input **20.0** at the calibrator input prompt,*
Push <ENTER>.
Wait 10 sec.
*The upper right hand display will show **-9.4***
Push *<RESET>*
Push *<RESET>* *(Return to Home Screen)*

The Climb output (Vacuum pump, alt. increase in FT.) is connected to the controller INC output.The Dive output (Evacuate chamber, alt. decrease in FT.) is connected to the controller DEC output.

OUTPUT (CURRENT LOOP) CALIBRATION:

Loop 1 (ANA1) and Loop 2 (ANA2)

Equipment Required:

Volt/Ohm/Amp. Meter capable of reading mA (0.000)

NOTE:

The current loop outputs are always calibrated at 0-16mA, even if they are being used as 4-20mA. The 620A instrument will automatically output 0-16mA during the calibration procedure and return the outputs to 4-20mA (if selected in the configuration) when you exit the calibration.

Access the Output Calibration screen:.
From the Main Menu select <4>.
From the Config-Tune-Calib menu select <4>.

1 - Set the meter to read mA and connect it to TB2 pins 1 + (pos) and 2 - (neg) of the A2216 Rear Interconnect PCB.

When the output calibration screen appears, the Loop 1 output is forced to 0.000 mA.

NOTE: Do not make the ZERO adjustment for this calibration unless: Associated components on the analog input board have been changed or the meter reading is off by +/- 0.002mA

Follow the display prompt if an adjustment is needed: The ANALOG OUT 1 (2) ZERO.

Press <PAGE DOWN>.

2 - The Loop 1, 16.00mA output calibration screen will appear.

When this screen appears, the Loop 1 output is forced to 16.00mA. With the meter still connected use the keypad to enter the meter reading on line 4 and press <ENTER>.

3 - Repeat this process untill the displayed reading is 16.000 mA.
The displayed meter reading will change to 16.000 when calibration is complete.

Press <PAGE DOWN> and repeat Steps 1 through 3 for Current Loop 2 (ANA 2), substituting TB2-4 + (Pos), TB2-5 - (neg), and Out 2 ZERO.

When calibration is complete push the <RESET> button to return to the Main Menu.

CAUTION: After the Output Loops are calibrated they are latched to the last value entered. The outputs must be re-activated by going to the Manual Mode and entering a new setpoint or by running a program.