Installation and Operation Instructions

Part Number 33ZCBAL-SA

INSTALLATION

→ The ComfortID Test and Balance Tool software requires no special installation. The software can be run from any folder. It can be saved to a hard drive or run from a floppy disk where the program is stored. The ComfortID Test and Balance Tool software is compatible with Windows95, Windows98, Windows NT 4, and Windows 2000 operating systems.

It is recommended, but not required, to create a folder on the computer hard drive called "ComfortID." Use the Windows Explorer program to create the directory and copy the "ComfortID.exe" program file into it.

If the program will receive frequent use, create a shortcut to the "ComfortID.exe" executable file on the Windows desktop for easy access.

The Test and Balance Tool software may also be started by opening Windows Explorer, opening the folder where the software is stored, and then double clicking on the ComfortID Test and Balance Tool software icon.

The ComfortID Test and Balance Tool will not make any system.ini file entries, does not add/change the system registry, and does not modify any PC configuration.

OPERATION

First Time Operation — It is assumed that a RS485 converter approved by Carrier is being used. The recommended converter is the B&B 485CARLP9A Port Powered RS232 to RS485 converter.

NOTE: The B&B 485CARLP9A converter can be purchased from:

B&B Electronics
1500 Boyce Memorial Drive
P.O. Box 1040
Ottawa, IL 61350
(815) 434-0846

A standard 4 wire phone cable will need to be field-supplied for connection to the controller or wall thermostat.

The ComfortID Test and Balance Tool is not designed to communicate through bridges. The computer using this tool must be plugged into the same bus where the ComfortID devices are installed.

DEFAULT VALUES — When the ComfortID Test and Balance Tool is started for the first time, it assumes some default values for the address space and setup. ComfortID controllers ship from the factory set for Bus 0, Element 140. The ComfortID Test and Balance Tool software sets its bus address at Bus 0, Element 238, and sets the default communication retries to 5. It is recommended that these values for the Test and Balance Tool are left at their initial settings. If the default values need to be changed, click on the "Options" menu item, and select the "Set Program Location and Retry Count" option.

ComfortID Test and Balance Tool software assumes, on initial start only, that Com1 is used at 9600 Baud for communication to the bus. If this setting needs to be changed, click on the "Options" menu item, and then select the correct Baud Rate and Com Port.

When the ComfortID Test and Balance Tool is closed, the configuration settings are saved to a file called "ComfortID.ini." The settings are stored in the same folder as the ComfortID Test and Balance Tool software. Each time the software is started, the software loads the configuration settings recorded in this file. The software also recalls the last zone controller Bus and Element number at the time of the last shutdown.

Help Information — During operation, help information is displayed in the bottom row in the Test and Balance window. Help, in the form of "fly over" text is displayed. Move the mouse cursor over (but don't click on) the item that help is needed for.

Using Multiple Test and Balance Tools at the Same Time — Multiple copies of ComfortID Test and Balance Tool software can be used on the same bus at the same time. However, some changes need to be made to the programs Element location. There cannot be two ComfortID Test and Balance Tools using the same element number. Acceptable ComfortID Test and Balance Tool element numbers are 231 to 239. Consideration must be made to avoid element numbering conflicts between ComfortVIEW™ or ComfortWORKS® software which is usually on the Bus at Element 239, and Network Service Tool, which is usually on the Bus at Element 231.

It is possible to have two ComfortID Test and Balance Tools monitoring the same ComfortID controller at the same time, although this is not recommended. Both ComfortID Test and Balance Tools have the ability to force points and change set points. Having two ComfortID Test and Balance Tools operating on the same ComfortID controller could easily cause a conflict between commands issued to the controller from one ComfortID Test and Balance Tool, if another ComfortID Test and Balance Tool issues a user initiated conflicting command.

Menu and Toolbar Navigation — There are four screens in the ComfortID Test and Balance Tool: the Points Display screen, the Zone Air Balance/Commissioning table screen, the Set Point screen, and the Airflow Service Configuration screen.

In each screen, the column headers detail what type of data is displayed in that column. Observe the Description, Value, Status, Name, and Force columns if applicable. Information is displayed here is a valuable reference to the Test and Balance Tool user.

→ POINTS STATUS — This screen allows forcing of selected points, and is primarily used to monitor the performance of the ComfortID controller. It displays the current data point information. The screen is updated every 4 seconds.

→ AIR BALANCE — This screen displays the air balance screen and allows calibration of the controller. It allows for commissioning mode, damper/transducer calibration, drive max cool, drive min cool, heating override, and fan override.

It displays the current data point information. The screen is updated every 4 seconds.

→ TEMPERATURE SET POINTS — This screen allows adjustment of the temperature control set points that the ComfortID controller will attempt to maintain. It displays the current data point information. The screen is updated every 4 seconds.

→ AIRFLOW SET POINTS — This screen allows adjustment of the various airflow set points used by the ComfortID controller. It displays the current data point information. The screen is updated every 4 seconds.

Changing to a Different ComfortID Controller — On the main menu screen, the bus and element numbers of the controller can be changed. The user may either use the up down arrows or double click in the edit box and type in the new Bus and/or Element number.

Changing Set Points/Forcing Points — To change a set point or force a point to a specified value, click on the data value of the point. Another window will appear where the value may be changed. The user may also click anywhere on the same row as the value and the same window will appear.

Not all of the points on each screen are forcible. If the point is double clicked, and the dialog box is not displayed, this point is not forcible.

ComfortWORKS® and ComfortVIEW™ Considerations — ComfortWORKS and ComfortVIEW software, if set for direct connect to any CCN, will hold the COM port open and prevent the ComfortID Test and Balance Tool or any other software from accessing it. The ComfortID Test and Balance Tool will generate an error that states in part: "ie_Open- device already open."

To resolve the contention for the COM port, perform the following steps:

1. Click "OK" and shut down the ComfortID Test and Balance Tool software.
2. Open the Network Manager and configure the direct connect CCN to "Database Only."
3. Close the Network Manager.
4. Restart the ComfortID Test and Balance Tool, verify the settings, and begin the Test and Balance process.

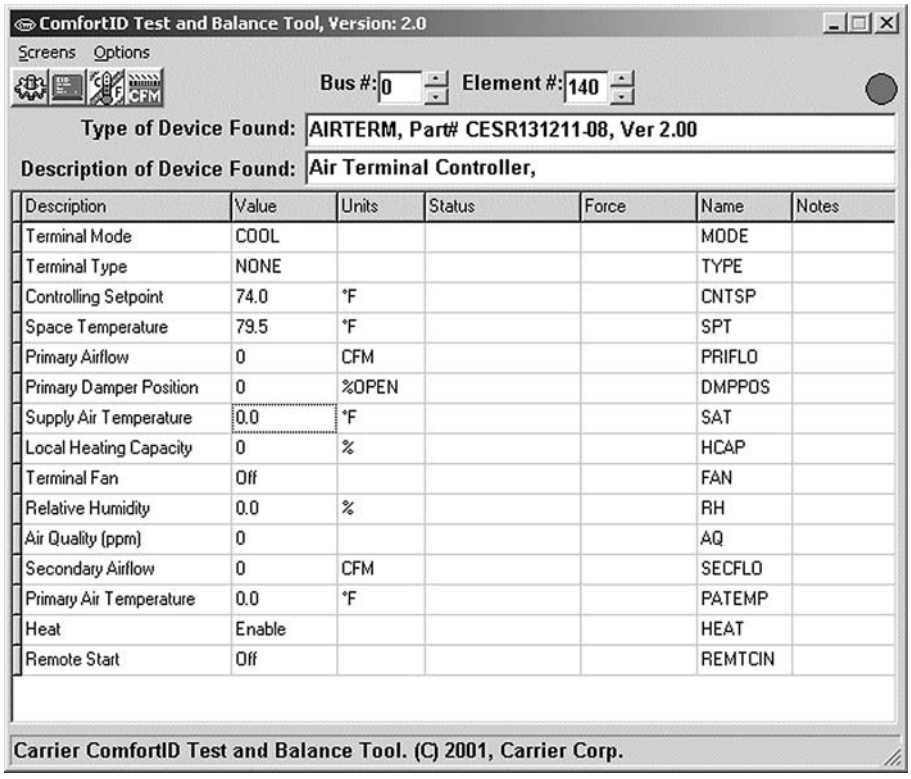
Other Software Considerations — Certain fax software drivers, upon system initiation, take over the communications ports and do not allow any other software access to the ports. If there is a conflict, it is recommended that fax software to be shut down or turned off for the duration of the Test and Balance process, to prevent blockage of the COM port.

IMPORTANT: The ComfortID Test and Balance Tool has the ability to force points. These points are the same level as Network Service Tool point forces. Make sure, when the Test and Balance process is completed, that each screen is checked to verify that there are no forces still in place. If forces are left in place, the ComfortID controller will be placed in a manual mode where it is not allowed to control properly. Occupant discomfort may result.

Points Display Screen — This screen allows forcing of selected points, and is primarily used to monitor the performance of the ComfortID controller. See Fig. 1.

TERMINAL MODE — The terminal mode is determined by the equipment mode as reported by linkage and space requirements determined by space temperature and set points. The ZEROCAL and COMMISS modes are the result of the activating the commissioning maintenance table to perform terminal testing and commissioning.

Terminal Mode:	Display Units	ASCII
	Display Range	HEAT, COOL, VENT, FAN AND VENT, DEHUMID, WARM-UP, REHEAT, PRESSURE, EVAC, OFF, ZEROCAL, COMMISS
	Network Access	Read only



→ Fig. 1 — Points Display Screen

TERMINAL TYPE — Terminal type is the confirmation of the terminal type configuration in the SERVCONF Service Config table.

Terminal Type:	Display Units	ASCII
	Display Range	SINGLDUCT, PAR FAN, SER FAN, DUALDUCT
	Network Access	Read only

→ CONTROLLING SETPOINT — Controlling Setpoint will display either the heating master reference or the cooling master reference depending upon what mode the terminal is in. The display will default to the heating master reference and display the last controlling master reference when in neither heating nor cooling.

Controlling Setpoint:	Display Units	F (C)
	Default Value	–40
	Display Range	–40 to 245
	Network Access	Read only

SPACE TEMPERATURE — Space temperature from 10 kΩ thermistor (Type III) located in the space.

Space Temperature:	Display Units	F (C)
	Display Range	–40.0 to 245.0
	Network Access	Read/Write

PRIMARY AIRFLOW — Volume of primary air calculated for pressure reading from the velocity pressure pickup probe located in the input collar of the air terminal.

Primary Airflow:	Display Units	cfm
	Display Range	0 to 9999
	Network Access	Read only

PRIMARY DAMPER POSITION — Damper position percent range of rotation determined by the transducer calibration procedure. The zone controller is designed be used on dampers with any range of rotation.

Primary Damper Position:	Display Units	% open
	Display Range	0 to 100
	Network Access	Read only

SUPPLY AIR TEMPERTURE — Temperature of the air leaving the zone controller downstream of any ducted heat source. Measured by a 10 kΩ thermistor (Type III). This temperature is used to control the maximum discharge air to the space when local heat is active. The sensor is not required or recommended for cooling only terminals. If supply air temperature display is required by specification, on a cooling only box, a heat type other than zero must be configured. This will have no adverse affect on the operation of a cooling only terminal.

Supply Air Temperature:	Display Units	F (C)
	Display Range	–40.0 to 245.0
	Network Access	Read/Write

LOCAL HEATING CAPACITY — When local heat at the terminal is enabled the percent of heat being delivered is determined by the following formula for modulating (floating point) type heat:

% Capacity = [(SAT - SPT)/(Maximum Duct Temp – SPT)]

The percent of heat delivered is determined by the following for two-position hot water or staged electric heat:

% Output Capacity = (# of active stages/Total stages) * 100

Local Heating Capacity:	Display Units	% output capacity
	Display range	0 to 100
	Network Access	Read only

TERMINAL FAN — The commanded output for the terminal fan on a fan powered terminal.

Terminal Fan:	Display Units	Discrete ASCII
	Display Range	Off/On
	Network Access	Read/Write

RELATIVE HUMIDITY — Space Relative Humidity reading from the optional relative humidity sensor. Used by Humidity control function if configured.

Relative Humidity:	Display Units	% RH
	Display Range	0 to 100
	Network Access	Read/Write

AIR QUALITY — Indoor air quality reading from a CO_2 sensor installed in the space. Used by Air Quality control function if configured.

Air Quality (ppm):	Display units	None shown (parts per million implied)
	Display range	0 to 5000
	Network Access	Read/Write

SECONDARY AIRFLOW — Airflow reading from the secondary pressure transducer, supplied with the secondary actuator, intended for dual duct and pressure control applications.

Secondary Airflow:	Display Units	cfm
	Display Range	0 to 9999
	Network Access	Read only

PRIMARY AIR TEMPERATURE — Primary air temperature from sensor (10 kΩ, Type III), located in main trunk of ductwork for supply air provided by the air-handling equipment. Used for linkage coordination.

Primary Air Temperature:	Display Units	F (C)
	Display Range	–40.0 to 245.0
	Network Access	Read/Write

HEAT ENABLE/DISABLE — Provides enable/disable function for local heat at the terminal. When enabled the Local heat capacity function will run to operate the terminal heat.

Heat Display:	Display Units	Discrete ASCII
	Display Range	Disable/Enable
	Network Access	Read/Write

→ REMOTE START — The Remote Start point is the status of the remote occupancy input. The remote timeclock contact input can be configured as a normally open or normally closed contact. When the timeclock input is 'On' the zone will follow its local occupancy schedule. When the timeclock input 'Off' the zone will be forced into unoccupied state.

Remote Start:	Display Units	Discrete ASCII
	Default Value	Off
	Display Range	Off/On
	Network Access	Read/Write

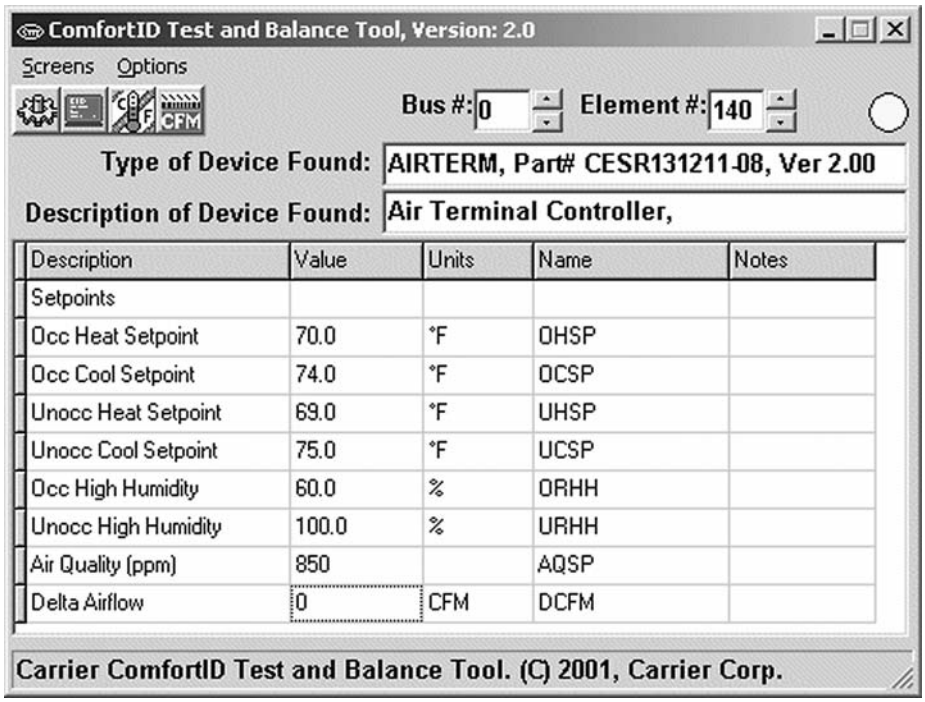
Set Point Screen — The Set Point screen is used to modify the zone controller set points. See Fig. 2.

OCCUPIED HEAT — The Occupied Heat set point is used to configure the heating set point for the zone controller during Occupied mode.

Occupied Heat:	Units	F (C)
	Range	40.0 to 90.0
	Default Value	70.0

OCCUPIED COOL — The Occupied Cool set point is used to configure the cooling set point for the zone controller during Occupied mode.

Occupied Cool:	Units	F (C)
	Range	45.0 to 99.9
	Default Value	74.0



→ **Fig. 2 — Set Point Screen**

UNOCCUPIED HEAT — The Unoccupied Heat set point is used to configure the heating set point for the zone controller during Unoccupied mode.

Unoccupied Heat:	Units	F (C)
	Range	40.0 to 90.0
	Default Value	55.0

UNOCCUPIED COOL — The Unoccupied Cool set point is used to configure the cooling set point for the zone controller during Unoccupied mode.

Unoccupied Cool:	Units	F (C)
	Range	45.0 to 99.9
	Default Value	90.0

→ OCCUPIED HIGH HUMIDITY — The Occupied High Humidity set point is used to configure the humidity set point for the zone controller if optional zone humidity control (dehumidification) is used.

Occupied High Humidity:	Units	% Humidity
	Range	0.0 to 100.0
	Default Value	60.0

→ UNOCCUPIED HIGH HUMIDITY — The unoccupied high humidity set point is used to configure the unoccupied humidity set point for the zone controller if optional zone humidity control (dehumidification) is used.

Unoccupied High Humidity:	Units	% Humidity
	Range	0 to 100
	Default Value	100

AIR QUALITY — The Air Quality set point is used to configure the IAQ set point for the zone controller if optional controlled ventilation support is used.

Air Quality (ppm):	Units	none shown (ppm implied)
	Range	0 to 5000
	Default Value	850

DELTA AIRFLOW — The Delta Airflow set point is used to configure the Delta Airflow set point for the zone controller if the zone pressure control option is used. If a negative pressure is desired, configure the value as a positive delta.

Delta Airflow:	Units	cfm
	Range	–9999 to 9999
	Default Value	0

Airflow Service Configuration Screen — The Airflow Service Configuration Table is used to configure the pressure independent and backup pressure dependent set points. See Fig. 3.

PRESSURE INDEPENDENT — Pressure Independent (PI) set points should be configured for pressure independent operation applications.

Cool Minimum (PI) — This configuration is the minimum airflow the terminal will control to when the equipment is in Cooling mode (or Fan Only mode) or free cooling. The space requirements for cooling must be at a minimum, or the terminal is a fan powered terminal and the space requirements are for heat.

Cool Minimum:	Units	CFM
	Range	0 to 9999 (Limited by the High Velocity pressure limit alarm)
	Default Value	0

Cool Maximum (PI) — This configuration is the maximum airflow the terminal will control to when the equipment is in Cooling mode (or Fan Only mode) or free cooling and the space requirements for cooling are at a maximum.

Cool Maximum:	Units	CFM
	Range	0 to 9999 (Limited by the High Velocity pressure limit alarm)
	Default Value	4000

Terminal Reheat (PI) — This configuration is for single duct units with ducted reheat. The desired airflow is configured at which the reheat will provide optimum performance. This value is compared to the Minimum Cool value and the greater of the two values is used to determine the airflow set point.

Terminal Reheat:	Units	CFM
	Range	0 to 9999 (Limited by the High Velocity pressure limit alarm)
	Default Value	0

Heat Minimum (PI) — This configuration is the minimum airflow the terminal will control to when the equipment mode is Warm-Up or Heat. If the terminal is not configured for VAV

central heating this is the only airflow the terminal will control to for these equipment modes.

Heat Minimum:	Units	CFM
	Range	0 to 9999 (Limited by the High Velocity pressure limit alarm)
	Default Value	0

Heat Maximum (PI) — This configuration is used to configure the maximum airflow at which the zone controller will operate if VAV central heat is configured to yes. If the equipment mode is heat or warm-up, and the demand in the space is for heat, the zone controller will calculate the proper airflow needed to achieve space temperature set point (operating between the Heat Min and Heat Max).

Heat Maximum:	Units	CFM
	Range	0 to 9999 (Limited by the High Velocity pressure limit alarm)
	Default Value	4000

Parallel Fan On (PI) — This configuration is used to define the primary airflow setting below which a parallel fan terminal should energize its fan. The setting should be used to allow a low volume of primary airflow to be better diffused into the space.

Parallel Fan On:	Units	CFM
	Range	0 to 9999 (Limited by the High Velocity pressure limit alarm)
	Default Value	0

Dual Duct CV Airflow (PI) — This configuration defines the Dual Duct, constant volume, total airflow set point.

Dual Duct Airflow:	Units	CFM
	Range	0 to 9999 (Limited by the High Velocity pressure limit alarm)
	Default Value	4000

PRESSURE DEPENDENT — Pressure Dependent (PD) set points should be configured for backup pressure dependent operation, if an operating problem with the pressure transducer occurs.

> IMPORTANT: Pressure dependent settings are included for use only in the event of a pressure transducer failure. The inclusion of these configuration settings does not indicate that Carrier is endorsing this product for pressure dependent operation. In the case of a pressure sensor failure, the zone controller will broadcast a pressure sensor failure message on the CCN bus. These configurations may be used by a service technician to put the terminal in Pressure Dependent mode until the zone controller can be replaced.

Cool Minimum Position (PD) — This configuration is the minimum damper position the terminal will control to when the equipment mode is Cooling (or Fan Only), or free cooling and the space requirements for cooling are at a minimum.

Cool Minimum Position:	Units	%
	Range	0 to 100
	Default Value	0

Cool Maximum Position (PD) — This configuration is the maximum damper position the terminal will control to when the equipment mode is Cooling (or Fan Only), or free cooling and the space requirements for cooling are at a maximum.

Cool Maximum Position:	Units	%
	Range	0 to 100
	Default Value	100

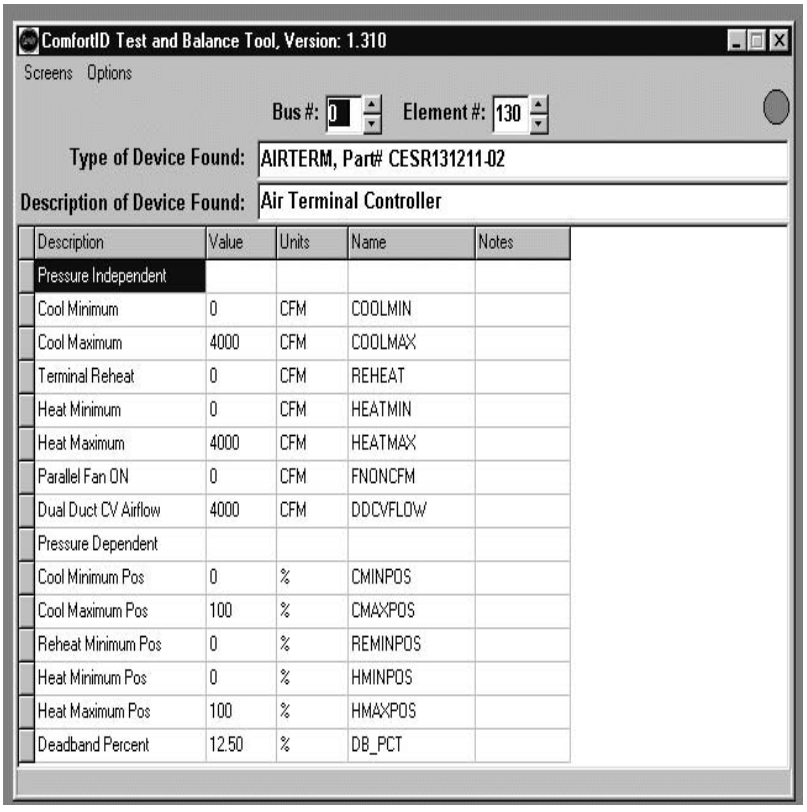


Fig. 3 — Airflow Service Configuration Screen

Reheat Minimum Position (PD) — This configuration is for single duct units with ducted reheat. Configure the desired damper position at which the reheat will provide optimum performance. This value is compared to the Minimum Cool value and the greater of the two values is used to determine the damper position.

Reheat Minimum Position:		
	Units	%
	Range	0 to 100
	Default Value	0

Heat Minimum Position (PD) — This configuration is the Minimum damper position the terminal will control to when the equipment mode is Warm-Up or Heat. If the terminal is not configured for VAV central heating this is the only position the terminal will control to for these equipment modes.

Heat Minimum Position:		
	Units	%
	Range	0 to 100
	Default Value	0

Heat Maximum Position (PD) — This configuration is used to configure the maximum damper position at which the zone controller will operate if VAV central heat is configured to yes. If the equipment mode is Heat or Warm-Up and the demand in the space is for heat the zone controller will calculate the proper damper position needed to achieve space temperature set point, operating between the Heat Min and Heat Max.

Heat Maximum Position:		
	Units	%
	Range	0 to 100
	Default Value	100

Deadband Percent — This configuration is used to configure the Deadband Percent that the airflow will operate with.

Deadband Percent:		
	Units	%
	Range	0.0 to 100.0
	Default Value	12.5

Zone Air Balance/Commissioning Table — The Zone Air Balance/Commissioning Table is used to display the air balance variables. See Fig. 4.

COMMISSIONING MODE — This variable is used to put the zone controller into the Commissioning mode. Force this point to enable. The zone controller will be ready to accept a command to perform the tests and functions on this screen.

NOTE: Commissioning mode will automatically be disabled after one hour.

Commissioning Mode:		
	Display Range	Disabled/Enabled
	Network Access	Read/Write

DAMPER ACTUATOR/TRANSDUCER CALIBRATION — The Damper Actuator/Transducer calibration is the first calibration which should be performed on a newly installed actuator. The zone controller will command the actuator to close and read the feedback potentiometer to determine the zero position of the damper. It will then command the damper to fully open. The zone controller will read the potentiometer to determine the maximum open position. Damper positions from closed to maximum open will be scaled to read 0 to 100% for the damper position.

The zone controller will then close the damper and open it once more to zero calibrate the airflow sensor. The entire calibration procedure can take up to 3 minutes. If the damper fails the test or the airflow calibration is unable to be completed, the Auto-Calibration point will indicate an Alarm.

Damper Actuator Transducer Calibration:		
	Display Range	Disabled/Enabled
	Network Access	Read/Write

MAXIMUM COOLING AIRFLOW CALIBRATION — By enabling the Maximum Cooling Airflow Calibration, the Maximum Cooling Airflow from the set point schedule will be made the Airflow CFM Set Point. The zone controller will modulate the damper to control to this set point. The actual airflow, damper position, and velocity pressure readings will be displayed.

If the set point is not correct, it may be changed from this screen by forcing the airflow set point to the desired value. The value will be written to the set point schedule in the Maximum Cool CFM set point, and the zone controller will begin to control to the new value.

The airflow can be measured using test and balance equipment and compared to the actual reading on the screen. If the value measured requires adjustment to the value on the screen, force the value on the screen to the value measured. The zone controller will take the value and calculate a new calibration gain which will be shown at the bottom of the screen. The new value will be automatically loaded into the Service Configuration table.

Maximum Cooling Airflow Calibration:		
	Display Range	Disabled/Enabled
	Network Access	Read/Write

MINIMUM COOLING AIRFLOW CALIBRATION — Enabling the Minimum Cooling Airflow Calibration will cause the airflow CFM set point to change to the Minimum Cooling set point. The actual airflow, damper position, and velocity pressure readings will be displayed.

If the set point is not correct, it may be changed from this screen by forcing the Airflow set point to the desired value. The value will be written to the set point schedule in the Minimum Cool CFM set point, and the zone controller will begin to control to the new value.

The airflow can be measured using test and balance equipment and compared to the actual reading on the screen. If the value measured requires adjustment to the value on the screen, force the value on the screen to the value measured. The zone controller will take the value and calculate a new offset.

The Offset configuration is included for precision applications where the minimum airflow is critical and not zero. The Offset configuration should not be used to zero the airflow transducer since an auto zero test is included in the normal function of the zone controller and is automatically performed each time the equipment fan is disabled (or every 72 hours for systems which run the fan continuously). After performing air balance testing using the Air Balance Maintenance screen, it is a good idea to upload and save the Airflow set points, Calibration Gain, and Offset values.

Minimum Cooling Airflow Calibration:		
	Display Range	Disabled/Enabled
	Network Access	Read/Write

HEATING OVERRIDE — This variable can be used to test the heat outputs. Enabling this variable will cause the heat to be modulated or staged to full heat until this point is disabled or the force released. Ducted reheat operation will be controlled so as not to exceed the configured maximum duct temperature. The supply-air temperature is included on this screen to verify that the heat is operating.

Heating Override:		
	Display Range	Disabled/Enabled
	Network Access	Read/Write

FAN OVERRIDE — This variable can be used to test the fan on series and parallel fan powered terminals. Enabling this point will cause the terminal fan to run until this point is disabled or the commissioning mode is ended.

Fan Override:		
	Display Range	Disabled/Enabled
	Network Access	Read/Write

AIRFLOW CFM SET POINT — This variable displays the current airflow set point that the zone controller is controlling to. During the calibration tests this value can be forced, which will change the set point configuration for the value being tested.

Airflow CFM Set Point:	Display Units	CFM
	Display Range	0 to 9999 (Limited by velocity pressure transducer high alarm limit)
	Network Access	Read/Write

ACTUAL AIRFLOW DISPLAY — This variable shows the actual airflow being measured, based on the inlet size configured. During the Maximum and Minimum Cooling Airflow calibration tests this value can be forced, which will correct the multiplier or offset used to calculate the airflow.

Actual Airflow:	Display Units	CFM
	Display Range	0 to 9999 (Limited transducer high alarm limit)
	Network Access	Read/Write

PRIMARY DAMPER POSITION — This variable displays the current damper position. During CFM Balancing, this variable is used to display the position of the damper. This value can be used to see if the damper is fully open and the system air is sufficient.

Primary Damper Position:	Display Units	% (open)
	Display Range	0 to 100
	Network Access	Read Only

MEASURED VELOCITY PRESSURE — This variable displays the measured velocity pressure, which is used to check accuracy during test and balancing of the terminal. If the pressure appears to be much different than that measured with a Magnahelic gage, the transducer can be forced to recalibrate its zero by enabling the Damper/Transducer Calibration.

Measured Velocity Pressure:	Display Units	in. wg
	Display Range	0.000 to 2.000 (Limited by velocity pressure transducer high alarm limit)
	Network Access	Read Only

SUPPLY-AIR TEMPERATURE — This variable displays the supply-air temperature for ease of verifying the heat operation during the heat test.

Supply-Air Temperature:	Display Units	F (C)
	Display Range	–40.0 to 245.0
	Network Access	Read/Write

AUTO-CALIBRATION — This variable will display “Normal” if the actuator and airflow transducer calibrations are successful. If damper or transducer calibration was not successful, this point will display “Alarm” and the zone controller will broadcast the appropriate alarm (if configured to transmit alarms).

Auto-Calibration:	Display Range	Normal/Alarm
	Network Access	Read Only

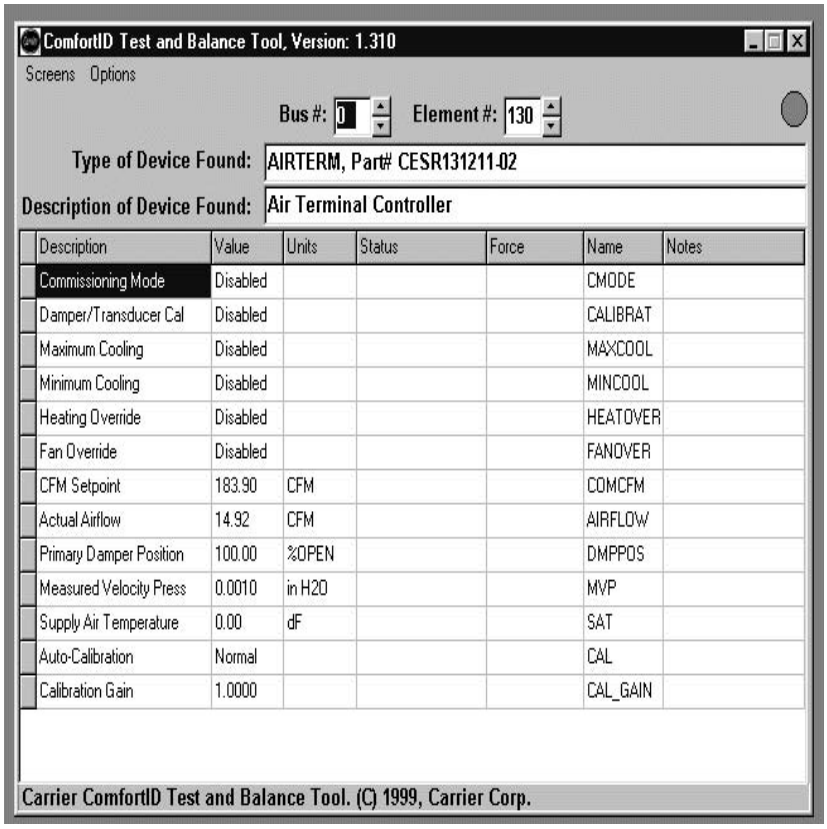


Fig. 4 — Zone Air Balance/Commissioning Table

CALIBRATION GAIN — Air terminal testing by industry standards is done with straight duct, upstream of the terminal. Since most applications are not installed in this manner, the actual airflow from the terminal, at balancing, may not equal the reading from the zone controller.

The Calibration Gain is used for making fine tuning adjustments to the airflow calculation. This number is calculated automatically by the zone controller after input to the air balance maintenance screen. The Calibration Gain can also be entered manually in the service configuration CONFIG screen.

A number of .95 entered into the Calibration Gain variable will cause the maximum airflow to be reduced to 95% of the calculated value. A number of 1.05 would cause readings to become 5% higher. The Calibration Gain is adjusted on the Air Balance maintenance screen when performing the Maximum Airflow Calibration and will have the greatest effect on the airflow at maximum CFM.

After performing the air balance procedure using the air balance maintenance screen, it is recommended to upload and save the Airflow Configuration, Calibration Gain, and Offset settings.

Calibration Gain:	Display Range	0.000 to 9.999
	Network Access	Read Only