



COMPTUS C44-V2

Operating Instructions Manual

*******Is this your first install? Review this manual prior to starting installation*****
The C44 V2 has a great deal more functionality than you may realize!**

The C44 V2 Wind Alarm controller is powered by either 100-240 VAC at 0.25A or 277 VAC at 0.125A, or by 10-14 VDC. Notice that there are separate terminal locations for AC versus DC power connections. (See the 10pin connector layout later in this manual.) Do NOT power it with more than 14.5 VDC.

For security a PIN is required to make changes to the controller. The PIN is: 3223

The control board is capable of monitoring wind speed, direction, or both wind speed and direction. It is designed to work with the Comptus A75-104 or A75-101 anemometers and/or the Comptus A75-302 Wind Direction Vane. Two onboard Normally Open (NO) relays, each rated at 5A-30VDC or 10A-250VAC, are controlled by user-defined settings through two alarms.

The following use of the term Select will mean to select or choose the arrowed item by pressing down on the encoder switch knob and releasing it. In selecting items, True means YES or ON, False means NO or OFF. *Text that is in italics is for additional information but will not be shown or displayed on the wind alarm controller. This information is to enhance the instructions in this manual.*

The display is backlit and will show green when the controller is operating normally. The backlight will change to red if a sensor fault is detected. After a time, the backlight will turn off and the normal amber background will be showing.

When first powered up, the screen will display the startup screen showing the firmware (FW) date, and then show the home screen where the wind speed (and wind direction, if so configured) will be displayed. The number 1 with the number 2 below it (for Alarms 1 & 2) is on the right side of the screen, and next to each of those numbers will be an R (for that alarm's Relay). The alarm number will be in a black box if the alarm is enabled, otherwise it will mean the alarm is disabled (not active) and no actions will be initiated based on wind conditions. The R will be in a black box if the alarm is triggered or activated, and the relay is now closed or latched.

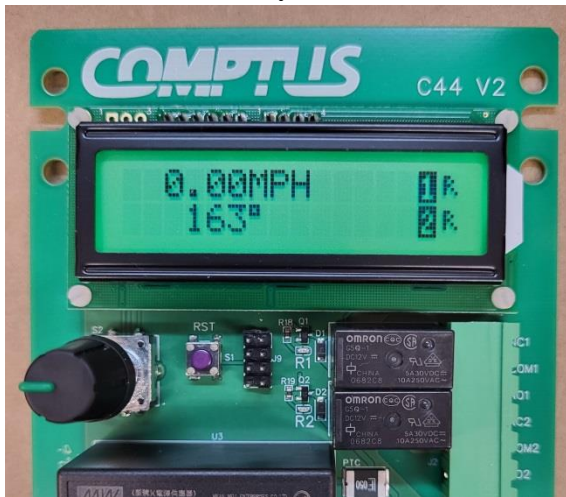


Startup screen (momentary)

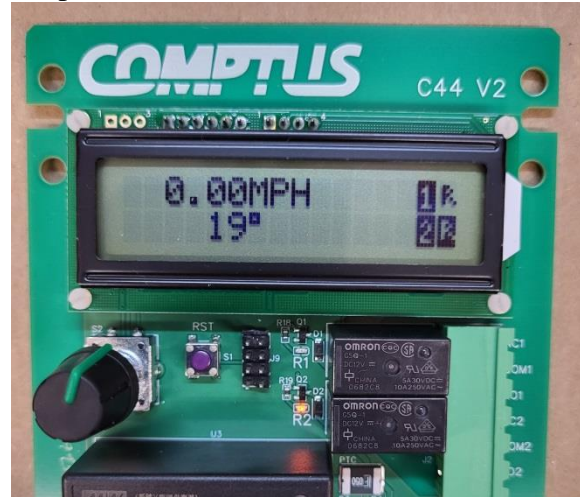


Home – alarm 1 enabled, alarm 2 disabled

On the home screen shown above, only the wind speed is displayed. Neither alarm is set up for wind direction, so there is no wind angle displayed. In the following home screens, where both alarm 1 and alarm 2 are enabled, the wind angle is displayed, as alarm 2 is set up to monitor and react to the wind direction. In the right-hand photo below, the “R” for alarm 2 is in a black box indicating the alarm is activated and the relay for alarm 2 is now in the latched position.



Home – alarms 1 & 2 enabled, each relay NO



Home – alarm 2 now activated

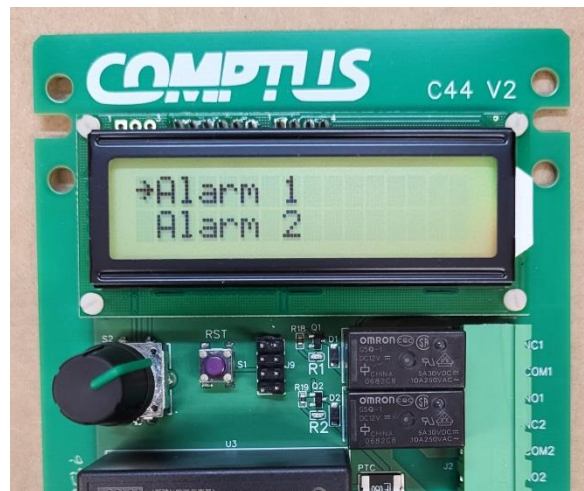
To make any changes, the security PIN “3223” must be entered. To do this, press down then release the encoder switch to show “Enter PIN”. Rotate the encoder switch knob to change the first position to “3”, then press and release the knob of the encoder switch to advance to the second position. Rotate the knob to display “2”, then depress and release the encoder switch to advance to the third position. Set the value to “2”, then depress and release to get to the last position and set it to “3”. Once done, depress and release the encoder switch to exit the PIN setting.

When the controller is in the configuration mode there is an automatic reset after 60 seconds of idle time. Any unsaved changes will be discarded and the display will return to the home screen. This is an intentional safety feature so the C44 V2 controller cannot accidentally be left in the configuration mode.

When the controller is at the home screen all saved alarm configurations are operational. Depressing the encoder switch will disable all alarm conditions and set the controller in configuration mode.



Cursor shown at 4th position (note underline)



Start of first menu – alarms (alarm 1 arrowed)

The first menu has several functions. These are listed below in order of appearance. When there is an arrow in front of the menu item, it can be selected along with additional sub-menus for that item. To scroll down through the menu, turn the knob of the encoder switch clockwise to get to the next item. Turning the knob counterclockwise will bring you back up the menu. In every menu there is a <Back> option to return to the previous menu.

- Alarm 1 (to enable and set alarm conditions, select sensor input, etc. in sub menu)
- Alarm 2 (to enable and set alarm conditions, select sensor input, etc. in sub menu)
- Anem type (choose between A75-104 coil version or A75-101 reed switch version)
- Anem units (MPH, M/S, KPH, FPS)
- Vane units (degrees or cardinal points)
- Contrast (screen contrast)
- <Use defaults> (to reset all options to original programming from factory**)
- <Save/exit> (to save all configuration changes you have made)
- <Discard/exit> (to not save any changes and revert to last saved settings)



Select desired anemometer units



Select to save desired changes

** The factory default settings are listed at the end of this document. If you choose to “Use defaults”, you must then select “Save/exit” as well. ANY changes to the configuration are ONLY saved when “Save/exit” is selected.

It is suggested to set the anem units (and vane units if desired) before going into the alarm sub-menus and setting the configurations. Note that if you select anem units as MPH, and configure the alarms that way, then later decide to change to FPS (feet per second), the set points will all convert directly without having to go back through any of the sub-menus.



Select to discard changes



Top of items in Alarm sub-menu

--GENERAL--

- Enabled (to enable or disable that alarm; turn it on or off)
- Complement (sets relay to NC in non-alarm state – see other information further down)
- Use anem (elect to use the anemometer for wind speed for this alarm)
- Use vane (elect to use the wind direction vane for this alarm)
- Set Dur(ation) (the amount of time speed and/or direction must exceed Set thresh and/or From direction to cause alarm to trigger)
- Oneshot Dur(ation) (set amount of time alarm stays triggered, regardless of ongoing conditions***)
- Reset Dur(ation) (the amount of time speed must be below Reset Thresh and/or direction must be outside the From Dir -To Dir arc to cancel alarm)
Note that the Set Dur and Reset Dur times apply to both the anemometer and the wind direction vane. You will want to select the best time for your application, considering possible risks to personnel and equipment and the impact of possible short cycling of equipment. Use the Gust Threshold and Gust Ignore Direction features to guard against higher wind gusts.

FltClrRe Reset? (Set whether a manual reset is required to clear a sensor fault that has occurred)

--ANEM--

- Gust Thresh(old) (the speed, when exceeded, that instantly triggers the alarm – no delay time is used)
- Set Thresh(old) (the speed that when exceeded for the duration time will trigger the alarm)
- Reset Thresh(old) (the maximum speed when measured for the reset duration that will cause alarm to cancel)
Note that the Gust Thresh (if enabled) must exceed the Set Thresh which must exceed the Reset Thresh. Otherwise, you will see an “Invalid Config” error message when you go to save changes.

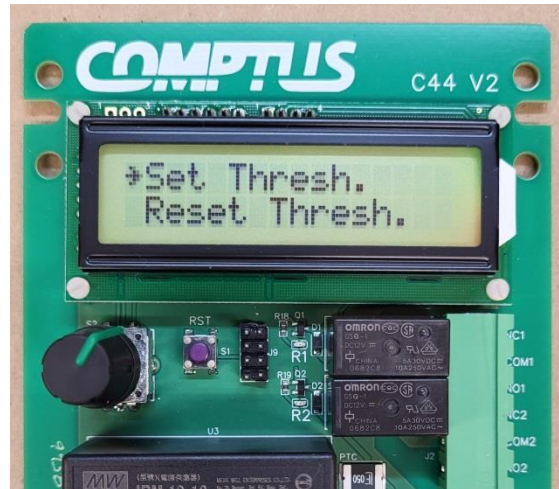
--VANE--

- From Dir(ection) (the starting angle, that when exceeded for the duration time, is desired to trigger the alarm – *Note that angles may be in degrees or cardinal points as selected*)
- To Dir(ection) (the ending angle, that when not exceeded for the duration time, is desired to trigger the alarm – low to high)
- Mirrored (the option to reflect the targeted arc by 180 degrees – in the opposite direction)
- Gust Ignore Dir(ection) (if enabled, then alarm is triggered by the Gust Thresh regardless of wind direction)

<Back>



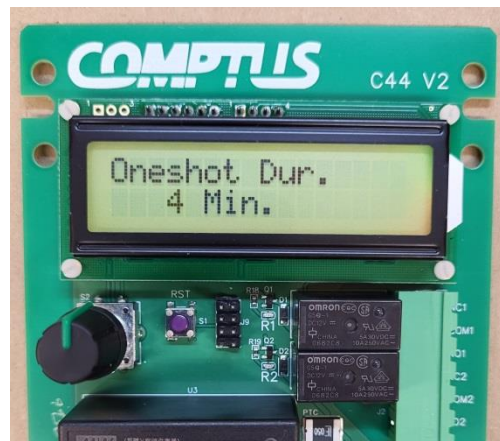
Select to use anem as sensor



Select "Set Thresh." – alarm on speed

Each alarm will require at least one input, either wind speed or wind direction. To set wind speed only, then set Use Anem to TRUE but make sure Use Vane is set to FALSE. To use only wind direction, then set Use Anem to FALSE and set Use Vane to TRUE.

For both wind speed and wind direction set both Use Anem and Use Vane to TRUE. This will cause the alarm to be set up as an AND condition for triggering the alarm. In other words, the wind needs to be above the "Set Thresh" AND the wind direction needs to be between the "From Dir" and the "To Dir" that was set for the vane to trigger the alarm.



If the C44 V2 is set up for both speed and direction, and the "Gust Ignore Dir" is enabled, then the alarm will trigger immediately off any gust that exceeds the "Gust Thresh" regardless of wind direction. If the "Gust Ignore Dir" is not enabled, then the alarm will only trigger if the "Gust Thresh" is exceeded and the wind direction angle is between the "From Dir" and "To Dir". (The wind speed of the gust alone will not trigger the alarm.) The "Set Dur" does not impact the triggering of the alarm. The alarm will cancel when the "Reset Thresh" and "Reset Dur" conditions (and any wind direction requirements) are satisfied. (Be aware that if you have the "Oneshot Dur" set to anything other than zero, the alarm will reset after that time duration is satisfied. If the wind speed and/or direction that triggered the alarm has not changed, then the alarm will re-trigger once the "Set Dur" has been met.



Alarm set to turn on at 15.0 MPH



Select “Reset Thresh.” – alarm off speed

The minimum “Set Thresh” should be 2 MPH. This is not so much a function of the wind alarm but more a practical matter for the anemometer (wind speed sensor). The “Set Thresh” must also be greater than the “Reset Thresh” otherwise an error message stating “Invalid config” will be displayed during “Save/exit”.

When a function is selected for configuration, another line for desired values will appear. To set the value, rotate the knob of the encoder switch to attain the desired value, then depress and release the encoder switch.

Complement – this sets the relay to NC (normally closed) and keeps power through the relay unless the alarm condition is met. This may be desired for some applications where fail safes are needed to prevent damage or injury. In this situation, the alarm “R” on the screen will be in a black box when it is energized (not alarmed) and will be just the “R” when the alarm is triggered, and the relay is de-energized.

Various things about wind vane configurations: Alarms are available with vane units set to Degrees or Cardinal Points. Degree settings go from 0 to 359 degrees; Cardinal points are the 16 compass points. When setting vane alarm points, the first step of “From Dir” is for the starting point of the arc you wish to alarm. The second selection of “To Dir” is the ending point of the arc to be alarmed. If you have selected degrees for wind direction, the from and to angles will be set in numerical values between 0 and 359. If you have selected cardinal points, then you will start at something such as ESE (East South East) and will end at S (South), for example. You can select a starting point that will cause the arc to include the zero point (through North) as shown in the two photos below.



Use “From Dir.” to set start of arc to alarm



Start alarm angle between 330° and 30°



End alarm angle between 330° and 30°



Mirror feature set to ON

Mirrored (refers to wind vane alarm settings) – this option allows a directions arc to one side, and the same arc 180 degrees opposite to what you entered. Say an alarm arc from 80° to 130° is desired. The alarm can be mirrored to also alarm an arc from $(80 + 180 =) 260^\circ$ to $(130 + 180 =) 310^\circ$. This feature may be appropriate for applications where there are concerns about wind coming in perpendicular to a structure or other feature, regardless of the direction from which it is coming. An example of this may be a net or awning that could be damaged if the wind is going to catch a large “sail area”.

Gust Thresh – This is an alarm for an instantaneous gust that exceeds the value entered as the Gust Threshold. While other wind speeds can be set up with a delay, or an averaging time (duration), the Gust will activate the alarm as soon as the set point is exceeded. The alarm will reset when the Reset threshold is achieved with the corresponding Reset duration. *The Gust Threshold is disabled when the wind speed Gust Thresh is set to 0 (zero).*

***Oneshot Dur – this is the amount of time the alarm will stay triggered once it has been activated. This will time out and cause the alarm to turn off once the time has been reached, even though the alarm reset duration will still be counting down until the Reset duration is achieved. In other words, the Oneshot Dur overrides the set duration time for the relay to be activated but does not change the alarm “release” time. To prevent the Oneshot from being activated, set the “Oneshot Dur” to 0. *The Oneshot option is good in an application where you need to run a device for a certain amount of time and then*

have it turn off. This is typically used where you would have human intervention in restarting something after the alarm has activated.

The C44 V2 is constantly running fault detects for the sensor(s) that are selected to be used. If there is a problem with the connections to the anemometer (or if an anemometer is not connected to the proper terminal locations on the 10-pin connector) then you will see “ANEM FAULT” displayed on the screen. If the wind direction vane is not wired correctly, or there is a break in the wiring, the display will show “VANE FAULT”. Both faults are cleared when you correct the wiring problem, unless you have set “FLTCLRRE RESET” to True.

The FLTCLRRE RESET is for "Fault Clear Requires Reset" which means human intervention is required to clear a fault with the sensors, such as an open or short circuit. If it is set to False, then as soon as the fault is repaired the device will return to normal operation. If the FLTCLRRE RESET is True, the display will continue to show FAULT. To clear the fault press the encoder knob.

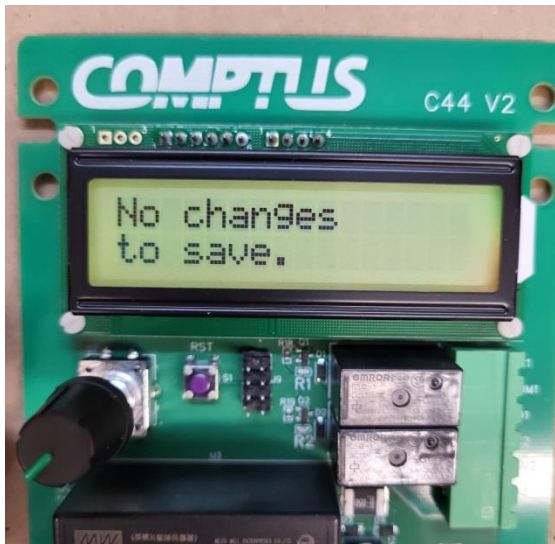
Once all settings are entered, scroll to find <Back> and return to the first menu. Scroll (either down or up) to find <Save/exit> and select that function by pressing and releasing the encoder button. This will result in the screen showing “Saving....Done!”. If this function is selected but no changes were made, a screen message “No changes to save” will display. Likewise, using the <Discard/exit> function will not save any changes made and the screen will display “Changes Discarded”. If no changes were made, the screen will display “No changes to discard”.



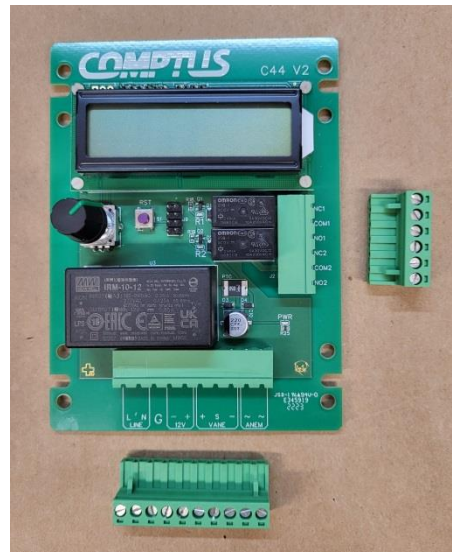
Save changes and return to home



Return to home without saving any changes

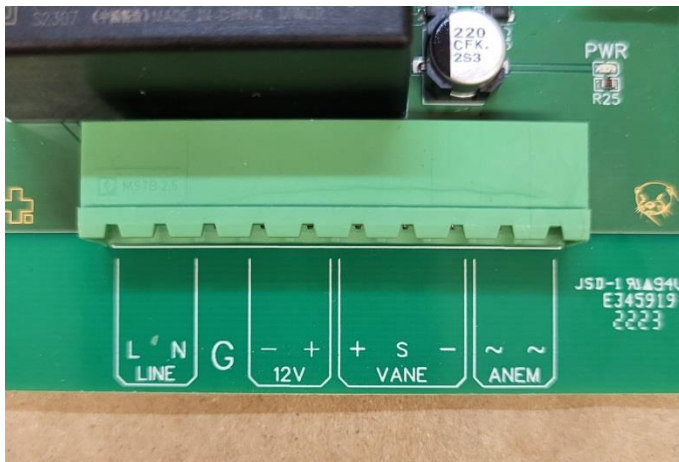


Confirms no changes made



Wiring connects through two plugs

Wiring connections are made through the removable plugs that connect to the two header blocks on the circuit board. The 10-pin connector features the AC or DC operating power, input connections for the wind direction vane, and input connections for the two wires from the anemometer for wind speed input. The 6-pin connector is for the outputs off the two relays. Each relay has connections for Normally Closed (NC), Common (COM) and Normally Open (NO). Each relay output is numbered either 1 or 2 to correspond to the associated alarm set points in the C44 V2.



10-pin terminal connections



6-pin terminal connections

Some final notes:

- The Set duration and Reset duration do not need to be the same. They are completely independent of each other.
- To guard against higher wind speeds and possibly lower sustained winds from a particular direction, use one alarm with a shorter Set duration to guard against the higher wind speeds (say, something like 20 MPH at 10 seconds) and use a lower Set duration when using the speed and direction combination (say, 14 MPH at 45 seconds).

- There is never any need to press the small RST button located next to the encoder switch.

Factory Defaults:

Top level menu items:

- Alarm 1 – see below in sub menu
- Alarm 2 – see below in sub menu
- Anem type - A75-104 coil version
- Anem units - MPH
- Vane units - degrees
- Contrast – 77%

Items in Alarm sub-menu (Alarm 1 and Alarm 2 have the same default values)

- Enabled - True
- Complement - False
- Use anem - True
- Use vane - False
- Set Dur – 10 seconds
- Oneshot Dur – 0 seconds
- Reset Dur – 10 seconds
- FltClrRe Reset? - False
- Gust Thresh – 0.0 mph
- Set Thresh – 15.0 mph
- Reset Thresh – 6.0 mph
- From Dir - 330°
- To Dir - 30°
- Mirrored - False
- Gust Ignore Dir – False

Any questions? Email or call comptus@comptus.com or call 603-726-7500 and ask for support.