

pocketCW

User's manual



Thanks for purchasing this device!

If you haven't done so, install the pocketCW app for your phone,

[iPhone / iPad / iPod](#)

[Android](#)




... check **bluetooth** is on, and launch the app.

Alternatively, **if you have the PC version of the device**, you may want just connect it to your PC – please [skip forward](#) if not using the smartphone apps.

You'll see the screen with all the information. If the CloudWatcher is powered on, in a few seconds the information will be filled with all relevant data.

You can set *alarms* on any of the data, and more: just touch the “settings” (gears) icon, all configurable items will begin to “dance”, touch one, and you'll see what can be configured. Touching the pocketCW logo launches the general configuration, where the sound can be chosen, vibration, etc.



Mon May 21 2018 - 12:05:44
Alarms ignored for 26 secs Data is 7 secs old

Relative humidity and dew point	24% DP: -4°C	Ambient brightness (in luxes)	57.749
Sky temperature (IR received, minus the ambient temperature)	-3.0°C	Ambient temperature	17.0°C
Battery charge	93%	General configuration	
Settings			

pocketCW v.1.0 - Lunático Astronomía

Most things are self explanatory, with just a few exceptions:

- the **dew point alarm** is set in relation to the delta with the *ambient temperature*. We are interested in condensation, avoiding it actually, so the alarm specifies how many degrees higher than dew point is considered safe.
- for **best cloud protection**, we recommend setting the alarm each night, at 15°C / 27°F above that of the clear sky. If the sky is not 100% clear when leaving the equipment working, that number should be reduced.

Let's say we're going to sleep for a while leaving the telescope taking images. The night is nicely clear, with a sky temperature of -10°C / 14°F. We can set the clouds alarm at 5°C / 41°F. This suggestion is however not carved in stone and may be different for your place – just check the sky condition and temperature and in no time you'll find it easy to predict.

Important: in order to provide effective protection, the app must be active at all times. The app will disable the “auto sleep” while running, so you just have to remember to have the pocketCW *screen visible*. Recommended to lower the screen brightness and, for prolonged periods, connect the smartphone to a charger.

Also noteworthy: the app will not fire any alarm unless it has established an initial connection to the pocketCW. Make sure data is received before going to sleep.

Types of alarm

The app can fire its alarm on **unsafe** conditions – but also on **safe**. You have the option to reverse the logic from the alarm configuration menu, and any time an alarm fires. It's also possible to **completely disable alarms** – then the menu is the only way to turn them back on, on safe or unsafe.

Alarm logic

To better understand how it works, let's see how each alarm will be fired:

- **Unsafe:** every time data is received from the pocketCW, if the conditions are measured as unsafe, and the delay, and snooze period have elapsed, then the alarm will fire.
- **Safe:** if the last data received from the device was safe, and the delay and snooze period have elapsed, the alert will fire.
- **Data age:** at any moment, if the pocketCW has failed to communicate for the specified period of time, the alert will fire.

If all alarms have been canceled, or if the app is in one of the configuration screens, the alarms will not fire.

Screen saver

To protect modern OLED screens – and also to save battery and reduce light, there is the option to enable a screen saver. Touching the screen anywhere will make the screen visible again.

About battery and power

The pocketCW can run from its internal battery (will last for almost 2 days when full and new, at normal temperatures) or from an external 12V dc power supply (center positive). If the external power supply is used, it will also charge the battery.

0.04A (40mA) is more than enough for both charging and operating the device.

Remember cold temperatures shorten battery life.

Android location

For [Google reasons](#), using Bluetooth LE requires the *location permission*. Our app will not use that information, not even request it, at all.

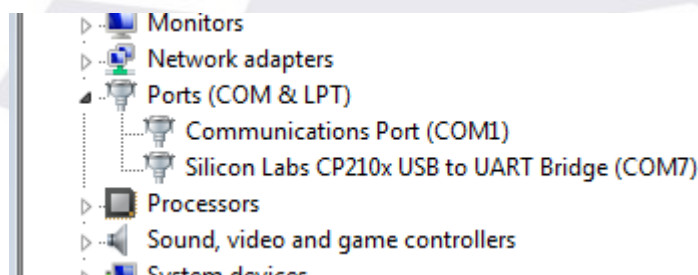
PC connection:

We have added serial communications (via USB) to the pocketCW in such a way it can connect and use the “standard” CloudWatcher software, opening a wide range of possibilities, from **ASCOM** safety monitor and observing conditions drivers, to inter-operation with almost every session automation program in the market.

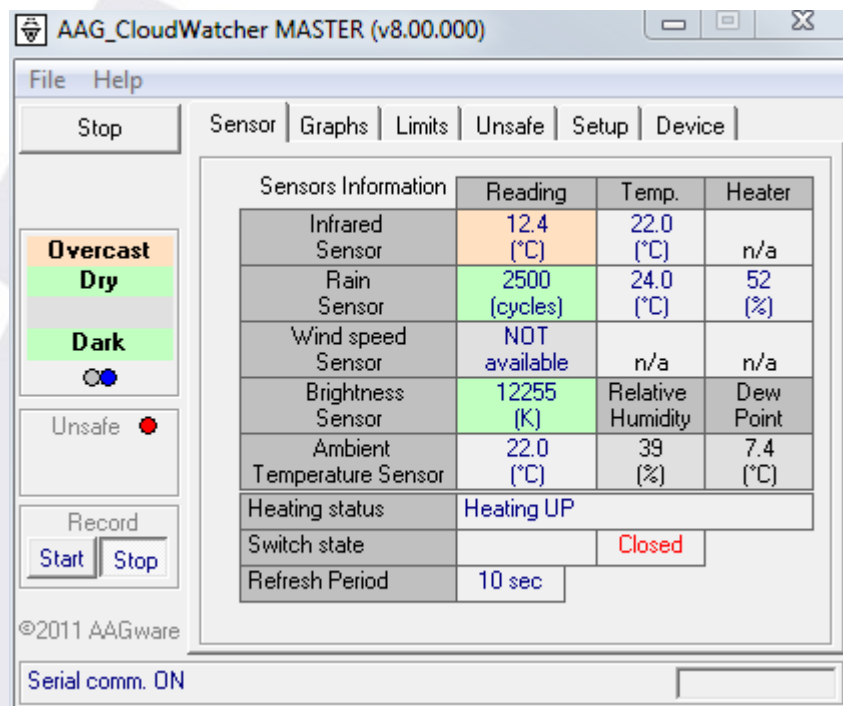
You will probably want to download and install the “Complete software package” from [this page](#).

The operation of the software is 99% the same as with the traditional CloudWatcher, but please keep in mind the following notes:

- The serial port assigned will be displayed by windows when connected using the microUSB cable. If you missed it, check in the device manager for a new CP210x device, under the **Ports (COM & LPT)** section – COM7 in the image below:



- The connection may take a few seconds to establish and result in good data. Sometimes even clicking twice the “Start” button may be required. Once established, it will be maintained no problem.



- The **Brightness sensor** value shown will not match the Luxes value that can be seen in the smartphone app, in order to be compatible with the limits / alarms system in the program¹ (high values meaning dark, low ones meaning light).
- The **Rain sensor values** are meaningless as the pocket does not have such a sensor; the same applies to the “**Heating status**” and “**Switch state**”.

Other than that, the behavior will be very much the same as a standard CloudWatcher. The help file for the software can be found [here](#), by the way.

If windows does not automatically install the drivers, please download and install from [Silicon Lab's driver page](#); the device is a CP2104.

If your pocketCW includes a battery, it will be slowly charged while connected to the PC.

Some technical notes:

- Range of operation: that depends on the *smartphone model*, and of course obstacles. We’ve tested with an iPhone, and received data at more than 20m. (no obstacles). With a low cost chinese android phone, 15m. was the farthest we could get.

¹ The value displayed will actually be $(50000 - (\text{Luxes} * 1000))$. So for 50 Luxes or more the value will be 0, for values less than 0.001 Luxes the value will be 50000.

- Bluetooth: this device implements [Bluetooth Low Energy \(BLE\)](#) - which is very different to the old, plain Bluetooth (even if the name is the same). Not all Android phones with a suitable Android version (4.3+) have BLE support, even if most relatively modern phones do. Please check your phone specifications. BLE is also called Bluetooth Smart, or Bluetooth ULP (ultra low power). BLE is included in Bluetooth since v. 4.0.

So if your smartphone has Bluetooth 4.0 (or better), or Bluetooth ULP, or smart, or just Bluetooth Low Energy, it will communicate with the pocketCW.

Safety warnings:

- use a proper power supply; reverse polarity or higher voltage may, and most likely will, damage your pocketCW
 - do not leave the device under the rain or other heavy weather conditions – for a weather resistant check its bigger brother the [AAG CloudWatcher](#)
 - use only batteries supplied or recommended by Lunatico Astronomia
 - dispose of old batteries properly
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