



HANDS ON:

**PLUGCAM
PLUG-AND-PLAY
IP CAMERA**



Why spend \$1,000 on a security system and then pay someone to install it?

That's the question posed by the makers of the [PLUGCAM](#). It's a security system in a box that does everything you need for a seriously low price, and is so easy to install that anyone can do it!

The PlugCAM arrived in nice retail packaging, ready for its glamour shot. The PlugCAM promises to be a simple, easy security system that works with your smartphone or tablet or can work with a PC as a full featured security DVR.

Let's see what you get.

WHAT'S IN THE BOX



The PlugCAM comes with the camera module itself, power cord, a powerline adapter, ethernet cable, and instruction booklet. Everything is bright white and although it has a somewhat less industrial look than a black or nickel-plated system it looks like everything is built with quality in mind.

The first thing that struck me was the powerline adapter. Ethernet-over-

Powerline, also known as HomePlug, has been around for several years, and is a good alternative if you need high-speed transfer in a room without a wired connection point. There are some limitations to powerline networking, though. The data travels over your home's copper wires, and if there is already excessive noise on the line the adapter may not work. Powerline adapters have been known to have issues with high-wattage fluorescent lights, and if your home has two separate breaker panels, the PlugCAM and its network unit must be in the same box. Some breaker boxes have more than one feed line instead of using a crossover that feeds both left and right breakers, and the plugCAM's signal will go through a crossover but not pass into a second breaker box or a second AC feed.

Also, it's important to note that the PlugCAM's powerline networking, like all powerline networking, will not work if the network adapters are connected through a surge protector. The surge protector does an excellent job of completely stripping out the network signal.

Unfortunately, the PlugCAM only works through powerline; it won't connect direct through ethernet and it won't do wi-fi. If the powerline networking won't do it for you, the best solution would be plug in the powerline adapter into the same outlet as the PlugCam, and use a wireless bridge like the [WET610](#) to connect from the powerline adapter to your Wi-Fi network.

THE CAMERA MODULE



The PlugCAM's camera unit does tilt and pan manually. It can be a little stiff at first so be careful. It looks like a more or less generic digital camera like you'd see in a webcam, surrounded by infrared LEDs that give the unit some limited ability to see in the dark. The only connection is for AC power.

The bottom of the unit has a set of keyhole slots for mounting, a tripod mount that will fit any standard size camera tripod, and a sticker with a QR code on it. The QR code is the easiest way to connect your smartphone or tablet to the PlugCAM. There are a second set of keyhole slots on one side of the camera unit.

On the opposite side of the camera unit are the only controls of any kind. There are power and network lights, as well as a push button marked with a lock that doesn't seem to have a true purpose. Finally, there is a recessed button which will reset the camera to its factory settings if you forget the password.



THE POWERLINE ADAPTER



The PlugCAM doesn't use Wi-Fi to connect. It uses a technology called powerline networking, which creates a simple communications link in the home. The idea is that your home already has a vast network of copper wire running through it for electricity. By making a barely noticeable change to the way that the current flows through your home, in a way that has little or no effect on anything else in your home, two devices can communicate. It's something like passing coded messages through books or music. Unless you know what to look for, you wouldn't even know that it's there.

To connect the adapter, simply plug it into the wall somewhere near your router. Run the ethernet cable into your router, and you're done. Yes it is that easy. Not only that, up to 16 PlugCAMs can

communicate through one powerline adapter. This means that you can put a camera anywhere in the home and it will connect to your router through the same adapter.

Many expensive surge protectors will actually stop that signal from traveling, because the surge protector interprets the network signal as more noise that needs to be eliminated. For the same reason, you can't connect the powerline adapter to a battery backup, because the power from the backup's outlets comes from the battery, which is always being recharged by the wall. The networking information would not flow past the battery backup.

In fact, the best way to connect the powerline adapter is straight to the wall without a power strip or surge protector. That's how you will get the best possible result, and you may get no result at all through a surge protector. When you plug the powerline adapter into the wall and connect it to your router, you will see three green lights on the front indicating that it is working properly.

There are some cases when the powerline adapter won't work. First of all, all powerline adapters are susceptible to interference from large fluorescent lights and microwave ovens. Essentially anything that generates RF noise can have a negative effect on the quality of the signal. Also, if your home has more than one breaker box, the PlugCAM and its powerline adapter must be connected to the same breaker box. Any breaker in the same box should work.

THE MOBILE APP



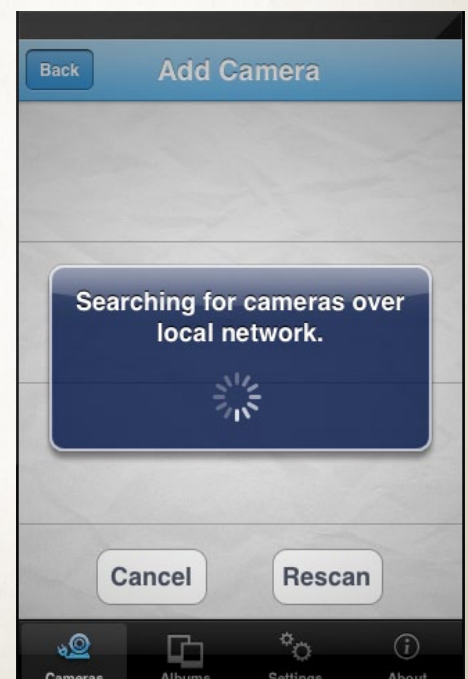
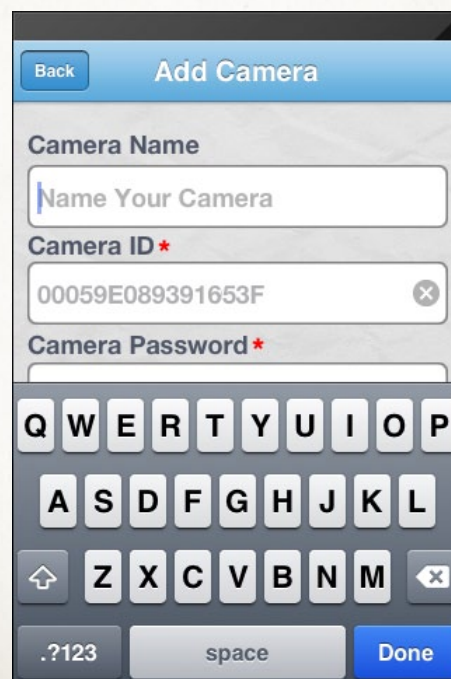
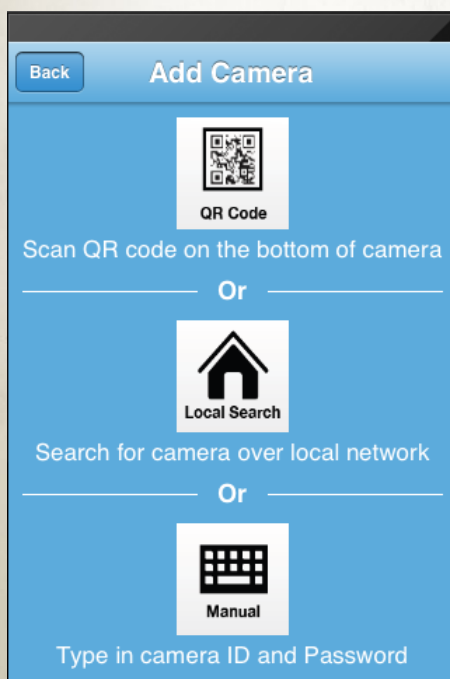
Once you've plugged the camera into the wall and connected the powerline adapter to the router and plugged it in, one of the green lights on the side of the camera will start to flash. This is the only indication that the system is working, but it's all you need to know. It's time, then, to install the mobile app.

There are apps for the iPhone and Android available in the App Store and Google Play, respectfully. Both are free. They are no-nonsense, no-frills apps, without even a really good description to let you know what they are. They're called, simply, "PlugCAM." There is no iPad or Android tablet optimized version, and there is no version at all for Windows Phone or Windows RT.

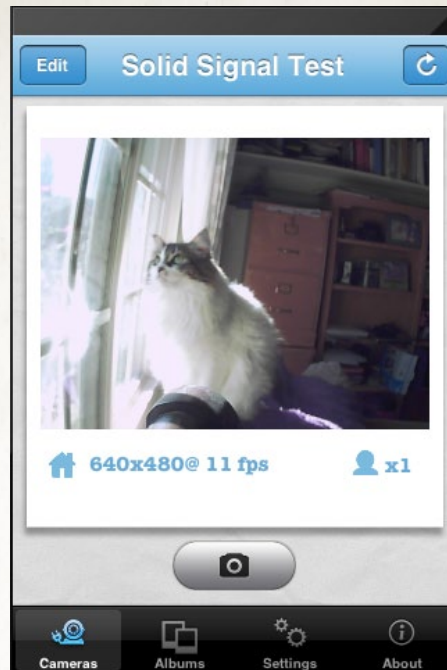
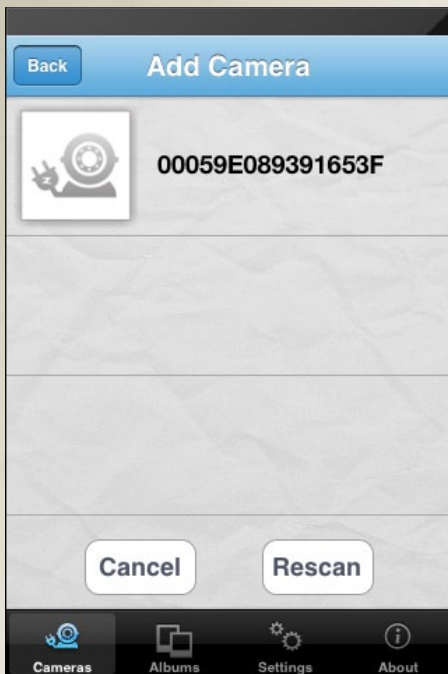
Once the app is launched, you have the option to find the camera one of three ways. If you haven't set up the camera before, the easiest is the QR code option. There is a code on

the bottom of the camera; using your device's built-in camera you can feed its information into the phone which is a LOT easier than typing all those letters and numbers into the device. (Looking at the bottom of the camera you will the camera name and password in a form you can read, in case you don't have a working camera on your device.)

When the device is found you must give it a name and change the default password. Changing the password will make it impossible to use the QR code method for setting up additional cameras. There is no limit to the number of devices that can have the PlugCAM software, although only three of them can be using it at one time. If you have already set up one, the easiest thing to do is use the "Search for camera over local network" option. If your device is on the same network as the PlugCAM it will be automatically found and you will be prompted for the password. Enter the password you used when you named the camera.



USING THE PLUGCAM APP



The next time you start the PlugCAM app, you will see all the cameras you have set up. Tap on a camera to start using it. It's that easy.

If you hold your device in portrait mode, you get a display like the one above. You see the resolution and the number of people viewing. Toward the bottom of the screen is a “snapshot” button. This doesn't actually put a snapshot in your camera roll; it puts them in the “Albums” where they can be stored or deleted later. To get to snapshots you've taken, tap on the “Albums” icon at the bottom.

If you hold the device in landscape mode, you see a full-screen display.

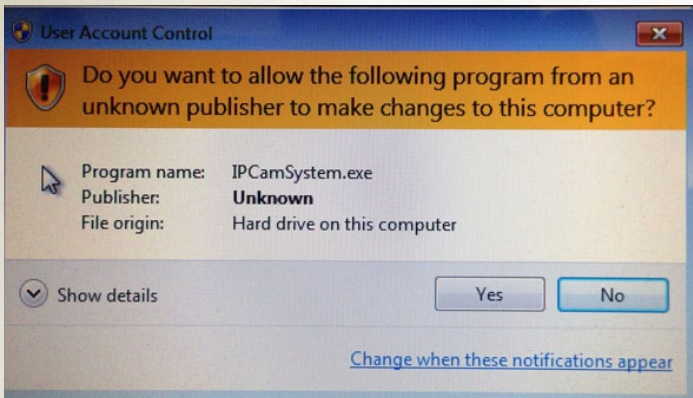


The PlugCAM has a ring of infrared LEDs enabling it to be used in full darkness. The image above was taken in a completely darkened room; the Android client is shown. A quick Google search seems to show that cats can't see infrared, so it's just a coincidence that the cat is looking at the camera.

USING THE PC SOFTWARE



It's inexpensive, sets up quickly, and has a simple mobile app. What else would you need for a killer security system? How about a super-powered FREE PC application? It's a little hard to find the PC app at the manufacturer's web site, so use the link at left

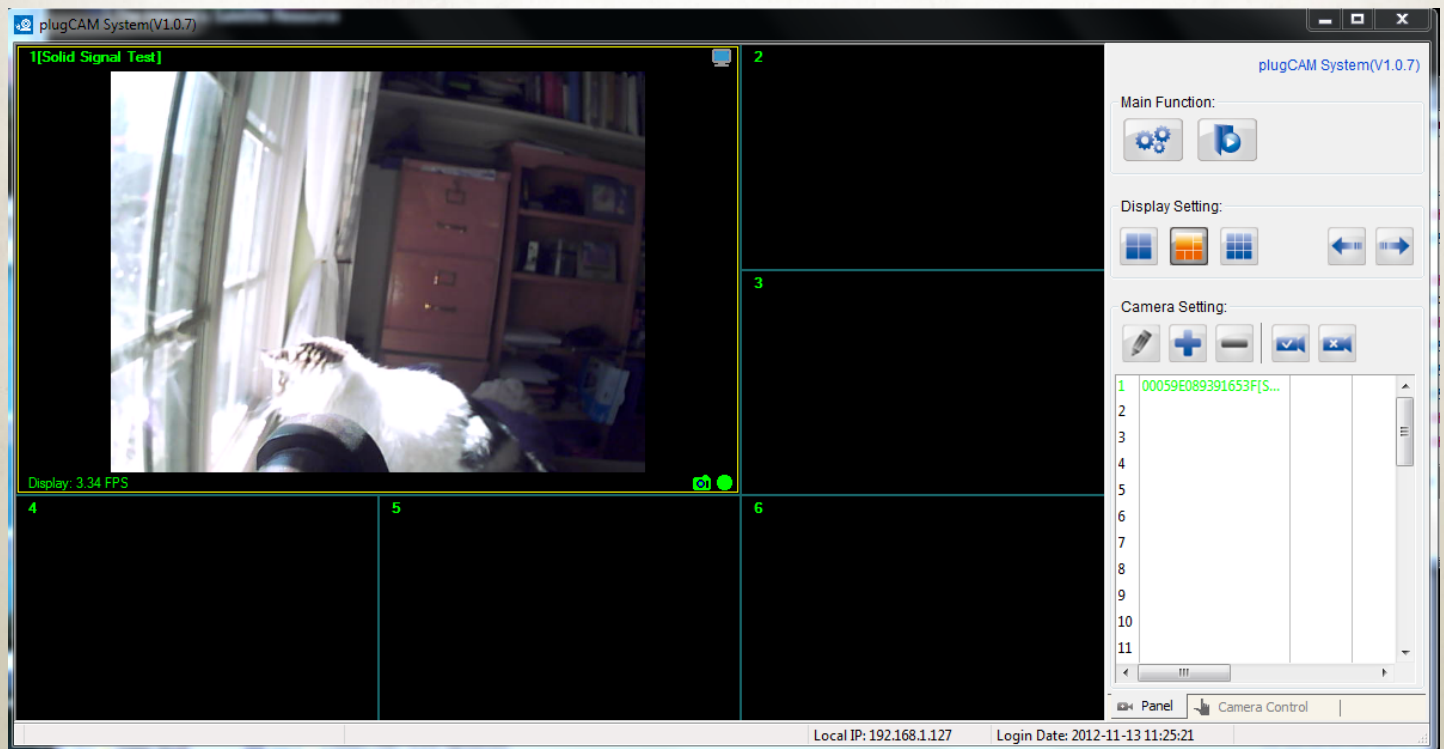


Installation is easy, but when you run the software, you will get a scary nag message each and every time. As you can see from the screenshot below, the PC software is very powerful. It gives you a view of multiple cameras at the same time. Unfortunately it's not always easy to understand but once it is set up, it works very well.

To add a camera, highlight one of the lines in the camera list (the white area at the lower right) and press the plus sign above the list. if you are in the

same network as the camera, simply click the search button and the camera's unique name should show up. If you have already given the camera a new password, type it in, otherwise type in the password found on the bottom of the camera. You can give the camera any name you want.

Once you have the option of looking at all your cameras in one of three ways using the three "Display Setting" buttons. If you want to look at a single camera full screen, double click on the image. To exit full-screen, push the ESC key on your keyboard.



ADVANCED FEATURES

If you right-click on an image, or highlight the camera's number in the camera list then press the pencil button, you can edit the properties of the camera.

This is where it gets really powerful. You can set an alarm based on motion detection, where the camera will automatically take a picture or record video when it senses motion. You can even have the software send you an e-mail. Of course these options only work when the PlugCAM software is running, so if this is for a dedicated security system you would want to use a separate computer running the software all day. You can schedule recordings to take place at fixed times as well.

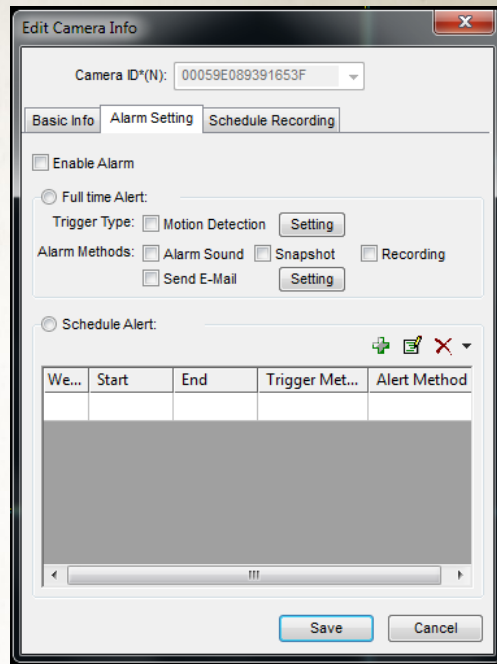
This feature worked really well in my testing. I pointed the PlugCAM out the window and it recorded cars passing by from about 100 feet (30 meters) away.

If you want a manual recording or snapshot, right-click on the image and choose “Manual Recording” or just press F4.

Additional camera controls are also available by clicking “Camera Control” at the bottom right. The most important choices here are whether or not to show the time and the camera name. If you are automatically recording, you will want these to show up on the screen.

The PlugCAM software is designed to record one camera at a time, but if you want to record the whole matrix, you can use free software like Camstudio to capture whatever is on the screen. This little free program does a very decent job. The quality varies depending on the power of your computer.

Using an older computer that you may already have, and the **7-room PlugCAM system** is really a lot cheaper than most security DVRs out there, and the simple fact is that there's not a lot of difference between what you would get with those other systems and what you get with the PlugCAM. In fact, I was really impressed by how powerful this whole system is, considering the price. There aren't that many security systems that include a smartphone app at all, and you have to pay a lot more to get them.



Selected Camera:	00059E089391653F 192.168.1.112:28612
Video Adjustment:	
View Mode:	<input type="radio"/> Outdoor <input checked="" type="radio"/> Indoor
	<input checked="" type="checkbox"/> Night Vision Enhancer
Video Resolution:	640X480
Video Quality:	High
<input type="checkbox"/> Flip Vertical	<input type="checkbox"/> Flip Horizontal
Frequency:	60Hz
<input type="button" value="Apply"/>	
Others:	
<input type="checkbox"/> Show Time	<input type="checkbox"/> Show Camera ID
<input type="checkbox"/> Show Camera IP	
Location:	
<input checked="" type="radio"/> Bottom Left	<input type="radio"/> Up Left
<input type="radio"/> Bottom Right	<input type="radio"/> Up Right
Change Password	
Old Password:	
<input type="text"/>	
New Password:	
<input type="text"/>	
Confirm New Password:	
<input type="text"/>	
<input type="button" value="Apply"/>	

CONCLUSION

It's worth saying that the PlugCAM isn't supposed to be a high definition video conferencing device. There is no sound, and the image quality is strictly VGA. It's comparable to a cameraphone from several years ago. However, that's not its purpose. Its purpose is to let you know what's happening, and to whom it's happening. In this review we specifically used two different cats (willing test subject) and you can see that they are clearly different.

The one area of concern is data usage. Using a data metering app we observed that the PlugCAM will take about 1 gigabyte of data for every hour of viewing in its default setting. There are lower quality settings but even the lowest uses 200 gigabytes an hour. If you are on a relatively small data plan, that can be a consideration. It is really best to use the PlugCAM where you can get free Wi-Fi, unless you have planned ahead with an appropriately sized data plan.

The unit itself does not have a zoom of any kind, and the tilt and pan are purely manual. So, it's best to mount the PlugCAM with care; close enough to observe the action but far enough away to take it all in. The included keyhole slots give a lot of flexibility in mounting. It's also possible to mount the camera upside down or even point it in a mirror, since the included controls let you automatically flip the image around. Still, this is a very powerful camera for the money. We've produced a short video that goes through the installation process.

Note: You may see a menu asking you to "Allow" an external link. This is normal.



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