

MoviePoster Motion Controller

Model GDCMOT1 and GDCMOT1-EXT

Hardware v2.1

User Guide

Read Before Beginning Installation



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1. Included Items.

1. MoviePoster Motion Controller



2. IR Blaster – for IR/USB installation method. Not needed for hardwired installation.



3. USB Sense Cable – for IR/USB installation method. Not needed for hardwired installation.



4. Breakout Sense Cable – for hardwired installation or PC power control using secondary relay.



5. External PIR sensor (Optional – Only Compatible with GCDMOT1-EXT)



2. Getting to know the MoviePoster Motion Controller.

The MoviePoster Motion Controller is an automation product designed to manage the power state of your display based upon motion or scheduled timer events. The Motion Controller can work with the MoviePoster software or be used independently with other digital signage solutions. It can be powered by a PC USB port or a USB power adapter that provides a minimum of 500ma (0.5 A). The device's internal Passive InfraRed (PIR) occupancy sensor detects movement in the immediate area and will simulate a power button or IR remote command to power the display on. The device is aware of the current power state of the display via a USB connection (or hardwire) to avoid sending power commands at the wrong time. After a configurable period of inactivity the device will power off the display. The GDCMOT1 is identical to the GDCMOT1-EXT with the exception of the connection for the external PIR sensor on the GDCMOT1-EXT.

Hardware Features:

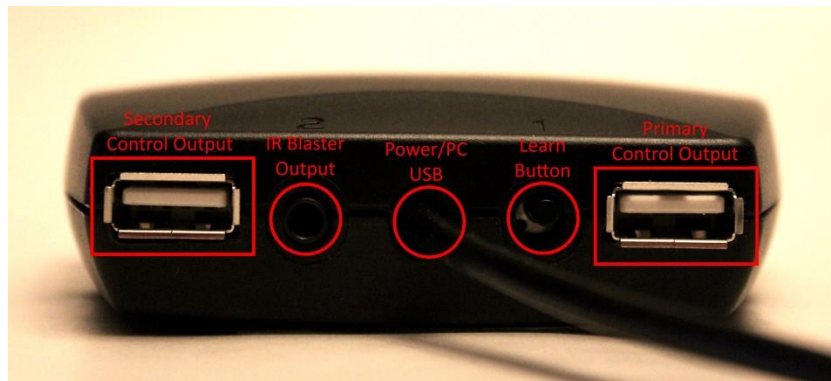
1. Front of the Motion Controller:

- PIR motion detector
- IR remote receiver
- Status LED



2. Back of the Motion Controller:

- Primary USB / Control Output
- IR Learn Button
- IR Output
- Secondary USB / Control Output
- External PIR Sensor Pigtail Jack (GDCMOT1-EXT only)



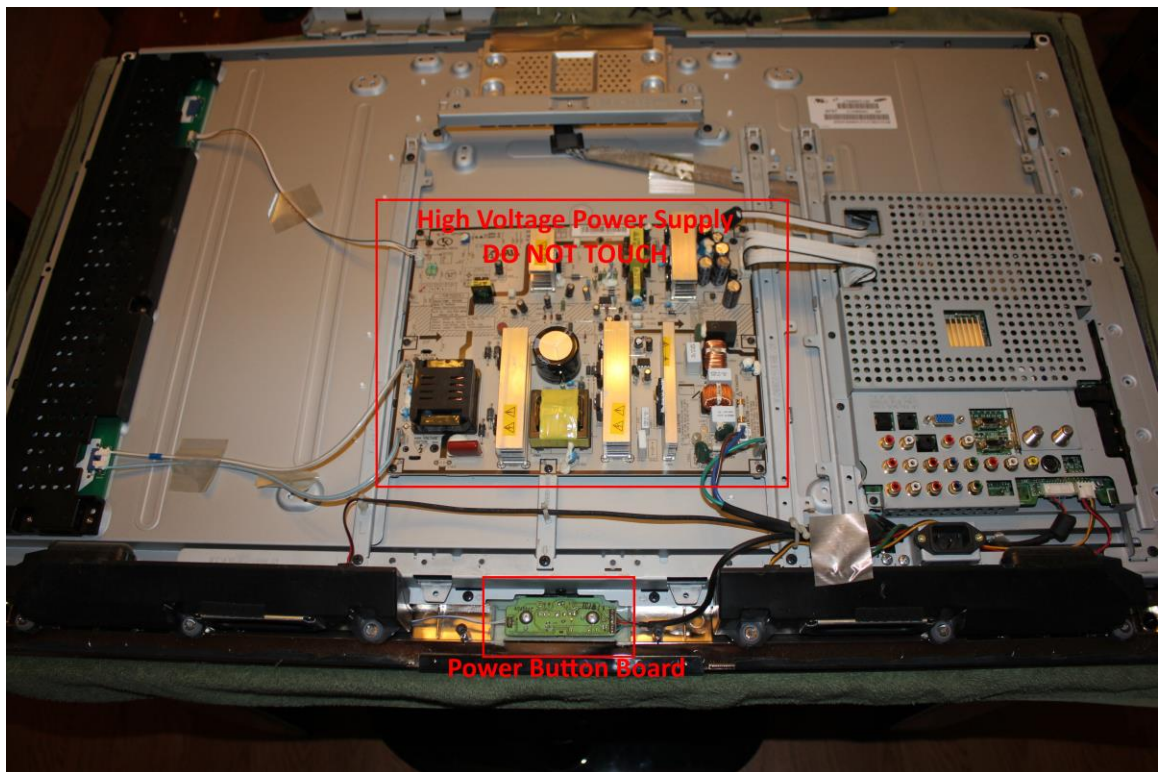
3. Choosing the installation method.

The installation method you choose depends greatly on the display you use. If your display has a USB port which is only powered when the display is on, you can most likely use the IR / USB installation method. Note: The IR feature may not be compatible with all displays. If your display is not compatible with the IR / USB installation method you may choose to hardwire the Motion Controller to your display. This method should be compatible with nearly all displays, but will require some modification to your display. Note: the Primary and Secondary control outputs use a USB port as the physical interface. However, they are not USB compatible ports. Only use the supplied sense cables as directed in this guide.

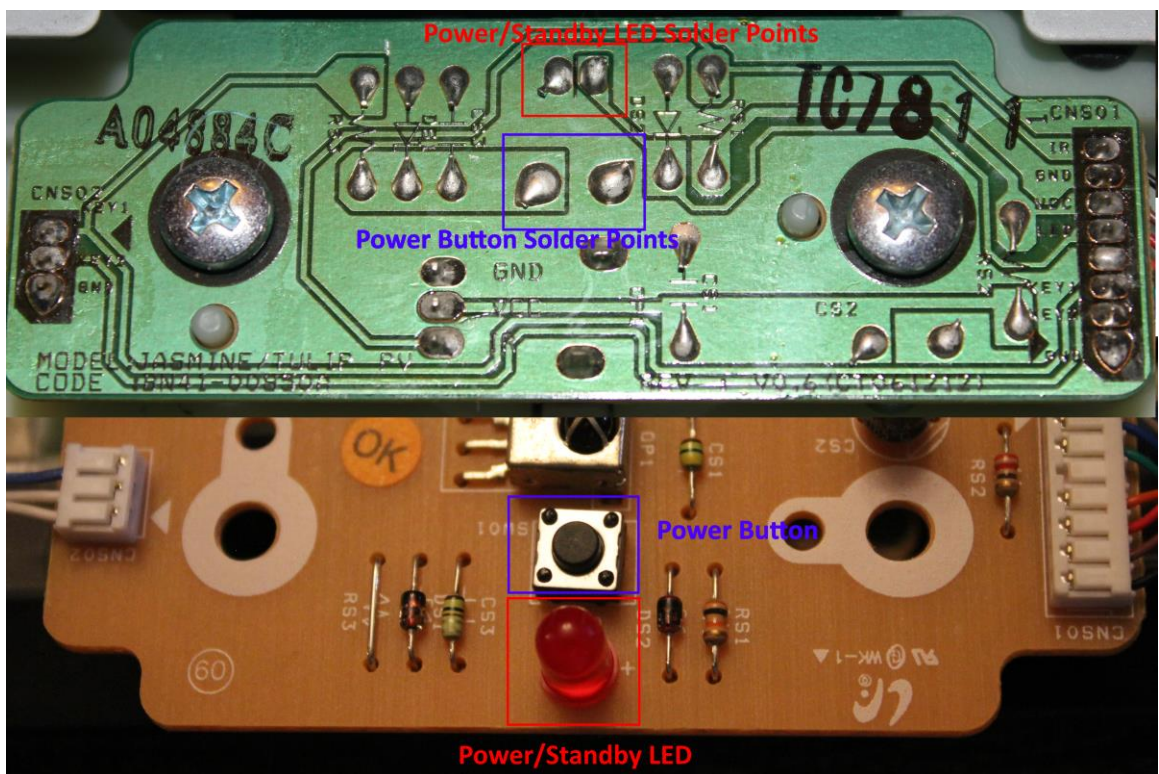
4. Hardwired installation.

The hardwired installation method should be compatible with nearly all displays. This method uses a relay to simulate pressing the power button on the display. It also uses a voltage reading from the display to determine the current power state. For this method you will need to open your display and solder 4 connections. This method has been tested on many displays without a problem and should be straight forward for anyone comfortable with a soldering iron, but be aware that it may void the warranty on your display and you are responsible for any damage caused to the display or the Motion Controller. Please practice all safe practices when working directly with electronic circuits. Always be sure to unplug the power source before beginning this process and avoid contact with the high voltage power supply as some transient voltage may be present even when power has been removed. If you do not feel capable of performing this installation it is recommended that you seek out a qualified technician. The images below are included for general reference of the process. The location of circuits in your display will surely differ slightly.

After removing the back of your TV, locate the circuit for power button as well as a 1 to 5 volt source which is only powered when the display is turned on. Typically, the power LED is a good choice for this signal source.



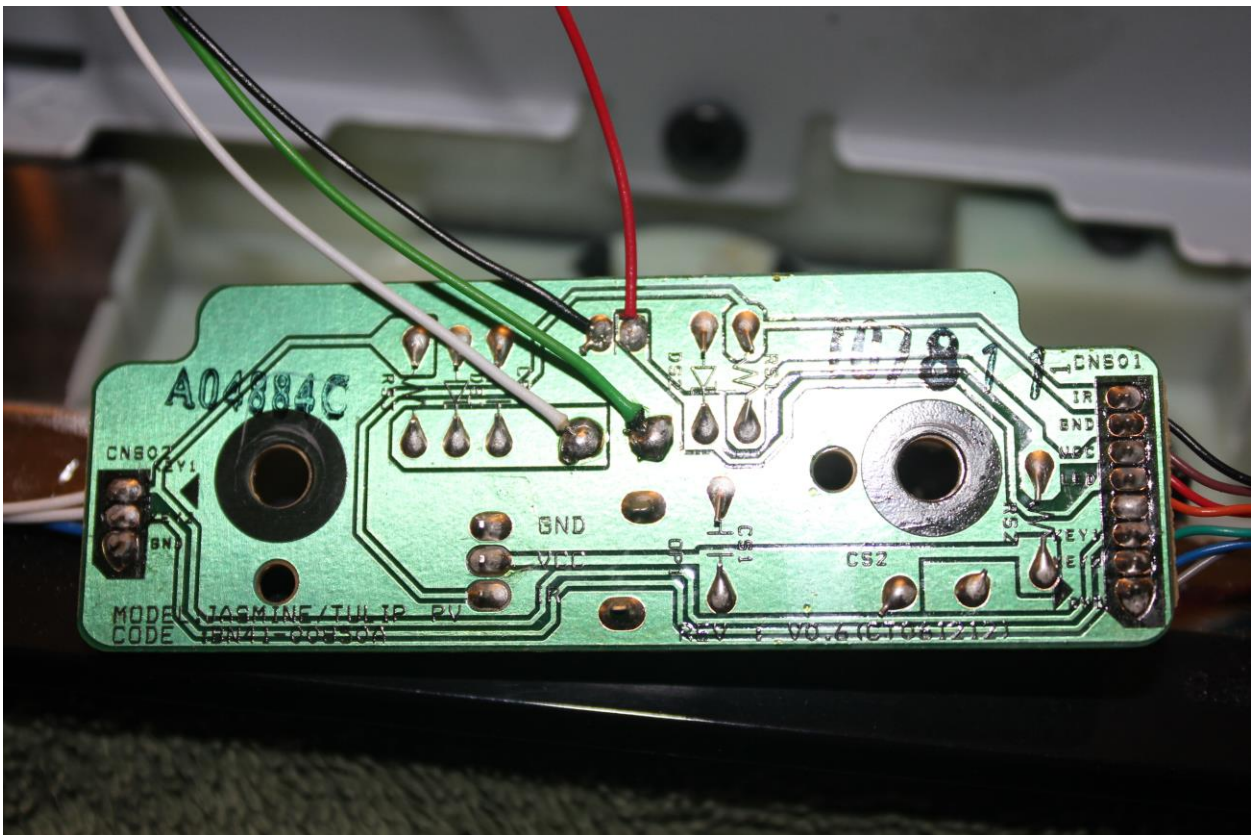
Some circuits may be clearly labeled, but it's likely you'll need to inspect the board to locate the correct circuit. After removing the board, you should be able to determine which solder points you need to use.



Connect the Breakout Sense Cable to the power button such that when the relay is closed it will simulate pressing the power button. The green and white wires connect to the internal relay and when shorted by the relay will simulate pressing the button. Connect one wire to each side of the power button. Note: The relay is intended for low voltage/low current loads only. DO NOT use to switch a high current load.

Connect the sense wires to a 1v to 5v source (such as the power LED) which is only on when the TV is on. This will allow the Motion Controller to know when the display is on or off. The black wire should connect to ground, red to the voltage source. DO NOT exceed 5 volt input on the sense cable or you could damage the controller and / or your TV.

If your TV has a standby light that is on when the TV is off, you can also use this as a voltage source. When using a source that is on when the TV is off, you must use the configuration utility and check 'Invert TV Sense'.



Safely secure and route the cable so that it does not interfere with reassembling the TV. Check to be sure the solder joints are secure and will not come loose. You may choose to use a spot of hot glue to keep the cable from moving. After reassembling the TV you can connect the Breakout Sense Cable to the Motion Controller.

5. IR/USB installation.

This method is non-invasive and requires no modification to your display. However, it may not be compatible with all displays. In order to use this installation method your display must have a USB port which is only powered when your display is on. You should disable the primary internal relay by unchecking 'Use TV Control Relay' in the configuration utility before beginning the installation.

Connect one end of the USB sense cable to the primary control output of the MoviePoster Motion Controller and the other to the USB port of your display. The USB sense cable does not transfer any data and is only used to read the voltage from the USB port. This will allow the Motion Controller to know whether the display is on or off at any time.

Connect the IR blaster to the IR output of the Motion Controller and attach it to your display where it is visible to the IR receiver. The range of the IR blaster is only a few inches so be sure it is positioned correctly. The controller will use this to send the IR remote code for power to your display.

Teach the Motion Controller the IR code for the Power button on your display's remote control by pressing the IR Learn button on the back of the motion controller. The LED indicator will begin to flash rapidly. Point your remote at the front of the Motion Controller and press the power button on the remote. The LED indicator will flash three times to indicate that the code has been learned successfully. If no code has been learned after several seconds, the controller will return to its normal operating mode.

There are numerous IR communication protocols and while the controller is able to decode most of them, there are some that can be problematic. In the event that the controller is unable to automatically learn the IR code for your display you can enable the Force RAW IR option using the configuration utility. This can improve compatibility with some IR protocols that use odd timings, such as Samsung. Alternatively, you can also use the IR Codes tab to manually specify the IR code for your device. The codes can be found on websites such as remotecentral.com. The codes can be entered either as a HEX value or as comma separated RAW IR durations. For example, the RAW IR durations for a Samsung TV looks like:

4600,4350,700,1550,650,1550,650,1600,650,450,650,450,650,450,650,450,700,400,700,1550,650,1550,650,1600,650,450,650,450,650,450,700,450,650,450,650,450,650,1550,700,450,650,450,650,450,650,450,650,450,700,400,650,1600,650,450,650,1550,650,1600,650,1550,650,1550,700,1550,650,1550,650

6. Using the second internal relay.

The Motion Controller contains a second internal relay which can be used to control the power of a second device, such as the PC running MoviePoster or other digital signage, lights or other devices. To use the secondary relay, connect the Breakout Sense Cable to the secondary control output. The relay uses momentary closure to simulate a power button press. The secondary control output also has an associated power sense connection which can be used in a similar way as the primary control output. The pinout is as follows, Red should be wired to a positive voltage source that is only powered when the PC is on, such as a USB header, or Power LED header. Black should connect to ground. White and Green connect to the internal relay and function as a momentary switch. They should be connected to the power button header or wires. See the hardwired installation method above for an installation example. **DO NOT** exceed 5 volts on the power sense connection or you could cause damage to the controller and / or your device. Note: The secondary relay is intended for low voltage/low current loads only. **DO NOT** use to switch a high current load.

7. Configuring device settings.

The MoviePoster Motion Controller has several configurable options that can be adjusted using the configuration utility. The configuration utility requires a Windows PC with the .Net framework 4.0 or later, supported on Windows Vista and above. The Motion Controller uses the USB HID protocol to communicate with the PC, so no additional drivers are needed, but it may take a moment for your PC to detect the device the first time it is connected. Once the device is recognized by the configuration utility the current settings will be retrieved automatically and the Reset, Refresh, and Save buttons will become active. It is recommended to connect the controller to the PC before opening the configuration utility. **Note:** The Reset to Defaults button will clear and reset ALL settings stored in the device to the default values, including IR codes and scheduled event timers.

The Settings tab includes the basic options for enabling or disabling the internal PIR motion sensor, internal relays, sense threshold, and timeouts. When running the configuration utility, you can hover your mouse over any of the blue question mark icons for a description of each setting.

The 'TV' settings below correspond to the Primary Control Output.

Use TV Control Relay: Enable or Disable the Primary internal relay.

Invert TV Sense: When the TV Sense is inverted, the controller looks for a high value when the TV is off and a low value when the TV is on. This can be useful if wiring the sense cable to a standby LED that is on when the TV is off.

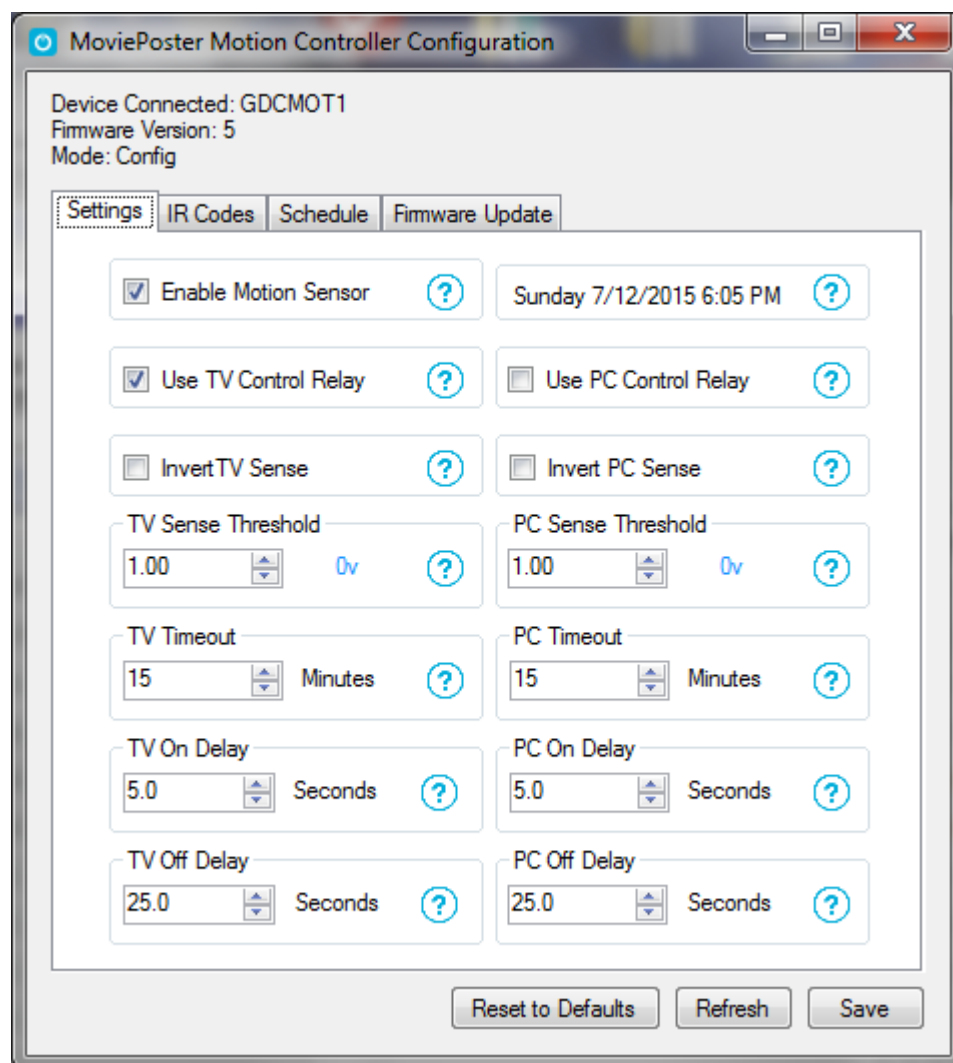
TV Sense Threshold: Threshold value used to determine if the TV is on or off. This can be adjusted if you the sense cable is connected to an abnormally low voltage line. Most installations will use the default value. The blue number is the current reading.

TV Timeout: Minimum time in minutes that the TV (Primary Control Output) will stay on. The timeout restarts any time that motion is detected.

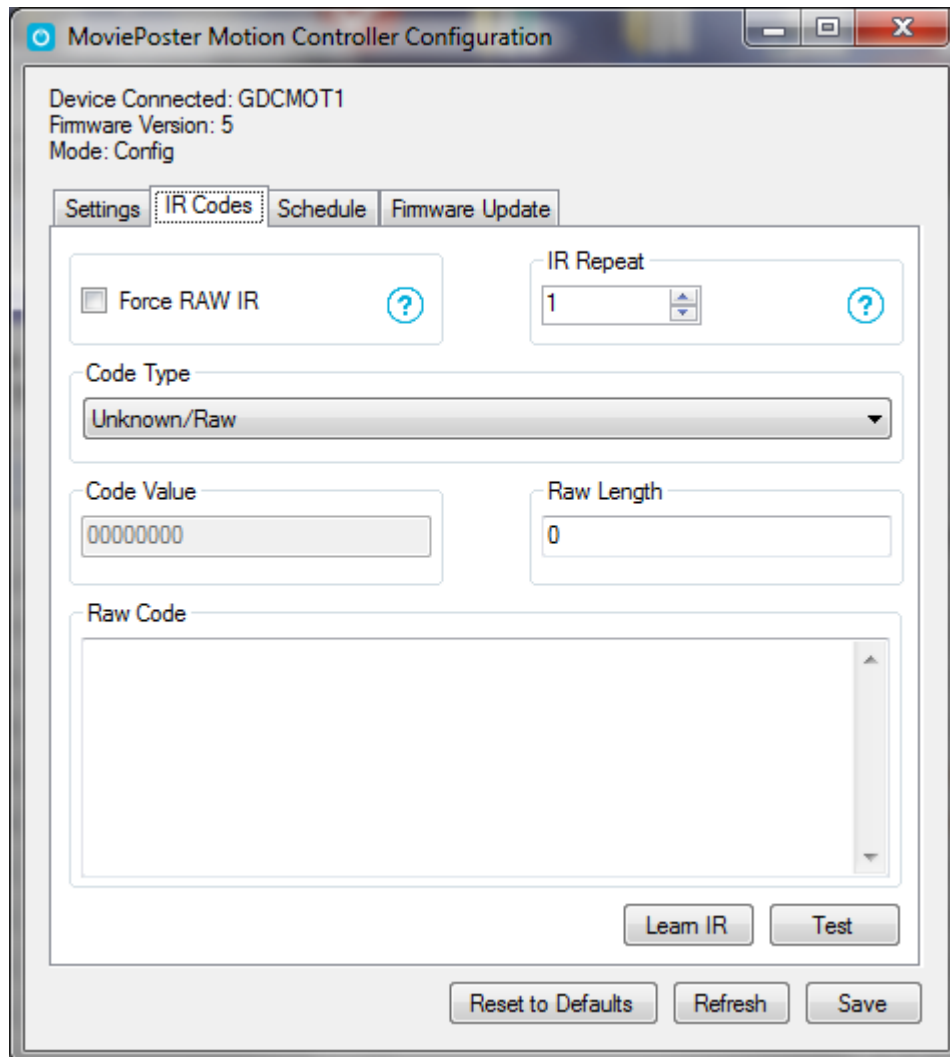
TV On Delay: Time to wait for the TV to turn on. It may be necessary to increase this value if your TV takes a long time to power on. If the value is too short the controller will re send the command and could cause the TV to repeatedly power on and off.

TV Off Delay: Time to wait for the TV to turn off. It may be necessary to increase this value if your TV takes a long time to power off. If the value is too short the controller will re send the command and could cause the TV to repeatedly power on and off.

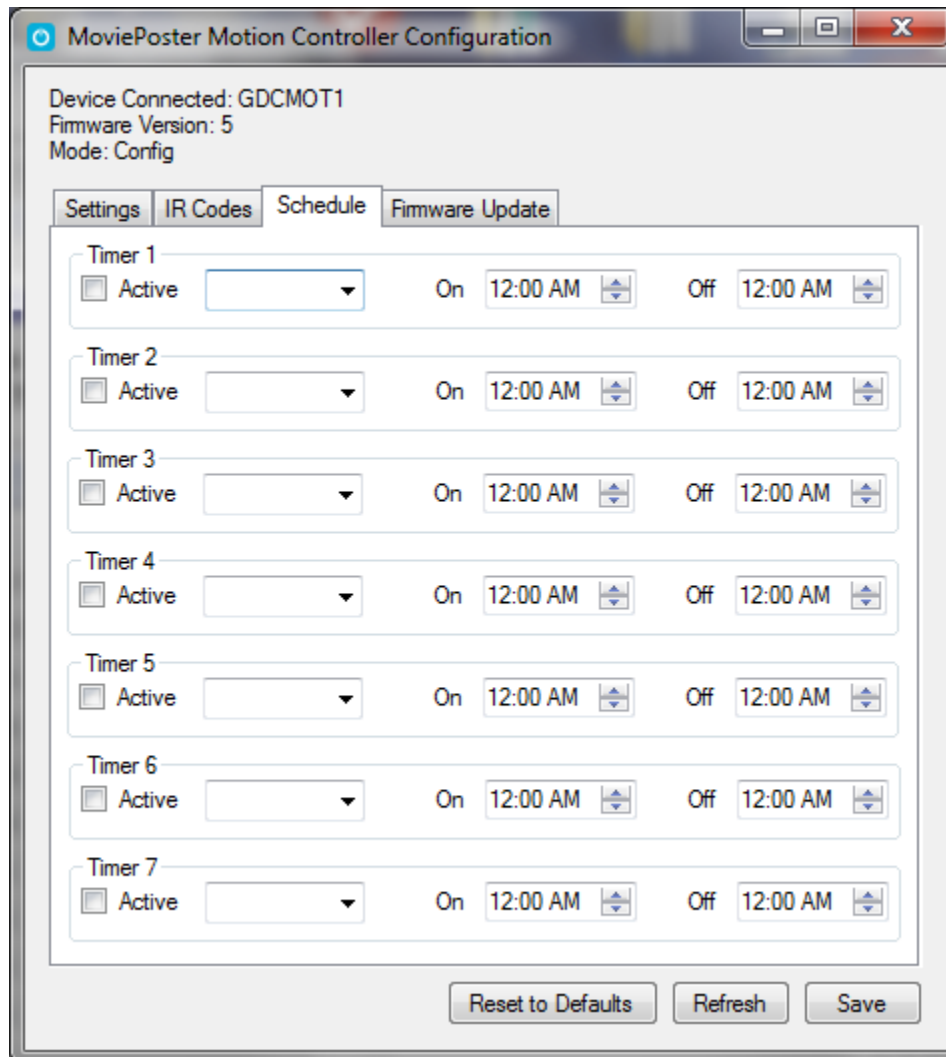
The 'PC' settings function the same way and correspond to the Secondary Control Output.



The IR Codes tab can be used to view and adjust the IR settings used for the IR / USB installation method. While most IR codes can be learned automatically, there are some devices that may require manual configuration. This tab also contains a test button that for verifying that your settings are configured correctly. The Test button will activate the relay if it is enabled and transmit the currently saved IR code. If you make any changes to the IR settings, you must click on 'Save' before they take effect.



The Schedule tab allows you to configure up to 7 on-off intervals to turn your display on at specified times of day. Each Schedule Timer can be configured to run once, repeat every day, or repeat only on specified days of the week. During the timespan that the schedules event is set to be active, the display will remain on, regardless if there is any motion in the area or not. Take care not to overlap Scheduled Timer intervals or there may be unexpected behavior.



The Firmware Update tab is used to update the device firmware in order to support bug fixes and feature enhancements. After browsing for the firmware update file, click on the Apply Firmware Update button. The update process only takes a few seconds, but it is imperative that you do not disconnect the device while the update is in progress. After the update is complete, the configuration utility will re sync its settings with the device.

The Debug tab is normally hidden, but may be useful to diagnose certain problems. To activate the debug tab, press Ctrl+D. Much of the output is raw data from the device, but some is human readable.

8. Using the Motion Controller with MoviePoster software.

The Motion Controller can be used with MoviePoster software version 2.1 and above to always turn the display on any time a “Now Playing” poster is shown. To configure, open MoviePoster settings and go to the Monitor Control tab.

9. Positioning the Motion Controller.

The Motion Controller should be positioned so that the PIR sensor on the front of the controller is pointed in the primary direction of the area you’d like to monitor. The internal sensor has a detection range of approximately 3 meters with a 110 degree detection cone.

The optional external PIR sensor module on the GDCMOT1-EXT has a range of up to 7 meters with a 120 degree detection cone. When using the external sensor both it and the internal sensor are capable of triggering a motion event. You may choose to use the Configuration Utility to disable the internal sensor if you only want motion triggered by the external module. The external PIR sensor module connects with a 3.5mm jack which can be extended up to 10 feet using a standard male to female stereo headphone extension cable.

The USB sense cable can be extended up to 10 feet using a standard USB extension cable.

10. Support

Support is available via email at movieposterapp@gmail.com. Please include ‘MoviePoster Motion Controller Support’ in the subject line for the fastest response. If you have any questions or concerns about installing the controller, please ask before beginning installation.

You, as the end user, take all responsibility for any damage or injury caused by the installation of the Motion Controller.