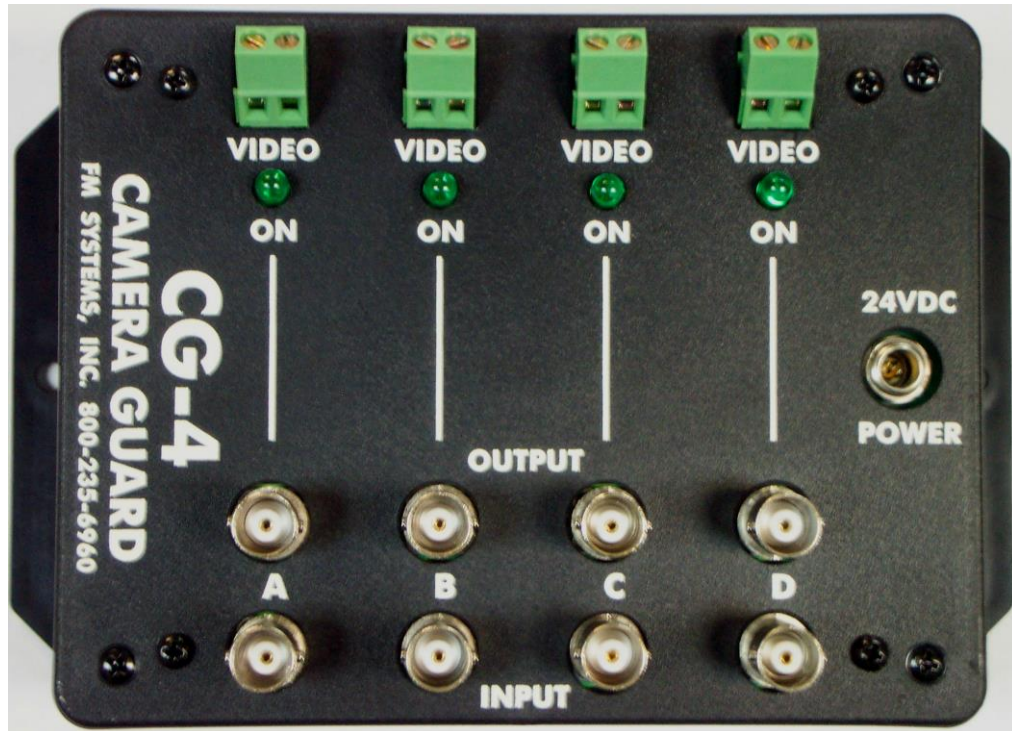


# CG-4

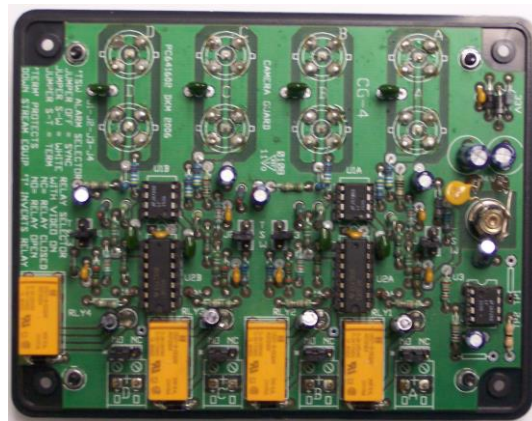


# CAMERA-GUARD

INSTRUCTION BOOK  
IB641601

# TABLE OF CONTENTS

<u>DESCRIPTION</u>	<u>2</u>
<u>MOUNTING INSTRUCTIONS</u>	<u>2</u>
<u>HOW TO CABLE THE CG-4</u>	<u>2</u>
<u>POWER SUPPLY INSTALLATION</u>	<u>3</u>
<u>OPERATION</u>	<u>3</u>
<u>CARE AND MAINTENANCE</u>	<u>3</u>
<u>APPLICATIONS (WHERE TO USE THE SYSTEM)</u>	<u>3</u>
<u>GROUND LOOPS THAT CAUSE PICTURE BARS</u>	<u>3-4</u>
<u>PROGRAMMING THE RELAY OUTPUT</u>	<u>5</u>
<u>CG-4 SPECIAL OPTIONS</u>	<u>5</u>



## DESCRIPTION

The **CG-4 Camera Guard** system supervises the continuity of four separate video signals from CCTV cameras. This supervisory system will identify loss of a video signal due to removal of the camera, loss of power to the camera, a camera cable disconnect or covering the camera lens. The CG-4 supervisory system continuously displays the "video on" condition of 4 cameras, with individual L.E.D. indicators for each video channel.

Normally Open or Normally Closed Alarm contacts are provided for each channel to send an alarm or activate equipment when loss of video occurs. These contacts are field programmable for Normally Open or Normally Closed contact operation. This unit can be connected to a local alarm to alert monitor personnel that a camera is being tampered with or send a message to a remote site by connecting the alarm contact output to external dialing equipment.

The CG-4 will identify tampering or failure of cameras when it occurs, reducing the liability associated with extended and undetected loss of area security when cameras are rendered in-operative without notification. The CG-4 increases the level of security provided by the CCTV system.

The CG-4 Camera Guard is connected between the camera and the Monitor equipment, in the video path. It provides a "Loop Through Input" that will not affect the picture quality or the video level. The unit detects a loss of SYNC that indicates the power to the camera is off, the coaxial cable is "disconnected" or the Wireless Transmission system has lost its signal. It can be field programmed to detect a loss of luminance caused by a covered camera lens.

Use this unit in any CCTV installation that requires guaranteed continuous video monitoring. Or use it to determine if you have an intermittent failure problem in any CCTV system.

## MOUNTING INSTRUCTIONS

The rugged one piece mounting structure allows you to mount the unit firmly in place with two screws. Select a place to mount the unit away from harsh or wet environments, indoors is recommended. The CG-4 should be located near the monitor equipment or the place you wish to bring the video signal to. Select a position that gives you the best access to cable the system and reduce the labor in installation.

## HOW TO CABLE THE CG-4

Attach the cable coming from the camera to the Video Input BNC. Then attach a cable from the BNC connector marked Video Output to the monitor equipment. BE SURE TO TERMINATE THE END OF THE VIDEO CABLE WITH A 75 OHM TERMINATION OR PROPERLY TERMINATE INTO OTHER EQUIPMENT. Repeat this step for each channel you wish to monitor.

## POWER SUPPLY INSTALLATION

The CG-4 is powered by a 24 VDC wall mount power transformer. Just plug the 24 VDC connector into the jack marked "24VDC POWER". The Green LED will not illuminate until both the power supply and the video is applied.

## OPERATION

When video is applied to the CG-4 it clamps the tip of sync and monitors the video level. If the video sync level or luminance level drops below acceptable limits a relay will de-energize to operate a set of contacts. The contacts are field programmable for normally open or normally closed. You may choose SYNC detect or LUMINANCE detect by moving the field programmable jumpers on the inside of the box. Jumpers hung on the "S" pin only (one pin only) will detect "SYNC" only. Use this for dark images or scenes.

Jumpers connected to "W" and "S" will activate the White Level or LUMINANCE detectors so both SYNC and WHITE level will be used to activate the alarm contact output.

Jumpers connected to the "T" and "S" pins will activate the Termination alarm mode that looks for over level caused by the removal of the termination equipment. It will protect a monitor in a public area and give an alarm if the video cable is disconnected.



## CARE AND MAINTENANCE

There is no routine maintenance or calibration required with this equipment.

## APPLICATIONS (WHERE TO USE THE SYSTEM)

This system can be used anywhere that a video signal in coax cable exists. It can be used near the camera to operate a local alarm or at the monitor site for integration into the existing alarm system. It can be used to prevent access to areas unless video is operational to guaranty that users are video taped entering the monitored area.

## GROUND LOOPS THAT CAUSE PICTURE BARS

The CG-4 is completely isolated from ground to prevent ground loops from occurring due to installation of the Camera Guard. Each camera connection is also isolated from each other to prevent ground loop creation. The CG-4 will not induce ground loops. If you do have ground loop bars in your picture read on.

## GROUND LOOPS THAT CAUSE PICTURE BARS (cont)

Here is how the 60 cycle bar gets into your video picture. If you connect a coaxial cable to a monitor or other equipment that plugs into the 60 cycle main power and the other end of the coaxial cable becomes grounded locally for any reason a Ground Loop is created. Any difference in the 60 cycle voltage between these two ground points will create a current flow in the shield of the coax that induces the 60 cycle AC voltage into your video signal. It is easy to measure these differential voltages, simply disconnect the video cables at the monitor point and using your voltmeter on AC volts, measure between any two shields of the incoming video cables, you will be amazed at the difference.

The solution is to never connect both ends of a video cable to local grounds. Any cable can be grounded at one end without inducing the ground loop current. When you run coax cable from one building to another, it is acceptable to install through connection points, but do not allow the shields to come into contact with one another or the local ground.

Coaxial connectors laying in a cable tray or conduit box can accidentally contact ground, don't let this happen. Use tape on the connector to prevent accidental grounding. Also try not to attach the camera to any structure that is likely to be grounded. Remember that the camera is already grounded at the opposite end of the coaxial cable by the monitor equipment.

At the monitor station, you may have many pieces of equipment connected together, like a (Quad, Tape Recorder, Monitor) all of which plug into the main 60 cycle power. This will not present a problem if you plug all of the equipment into the same power line at the monitor point. Make sure that all the equipment share the same ground point at the monitor station. Also try to keep the video cables between equipment, (the service loops) as short as possible.

If you already have an installation that has 60 cycle bars, there are some steps you can take to solve the problem. If coaxial cable shields are connected together anywhere in the system, separate them if possible.

Similarly remove all but one ground connection on each coaxial cable if possible. The ground is usually at the monitor end of the coaxial cable because the monitor equipment plugs into the 60 cycle main power supply which is grounded.

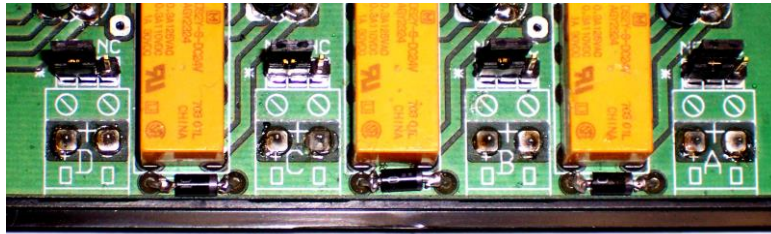
Sometimes a ground loop problem can be reduced by reversing the AC plug on the power transformer used to power the camera, or to reverse the 24 VAC power connection to the camera. This technique will not work on DC powered cameras.

If the problem still persists, a GB-60 can be installed at the end of the coaxial cable to eliminate the 60 cycle bars. This is much easier and cost effective when you consider the labor cost to find and solve the ground-loop problem.

## PROGRAMMING THE RELAY OUTPUT

The relay output can be programmed in the field using the jumper jacks on the PC board. The units are shipped from the factory programmed for (NO) Normally Open contacts. When "NO" is selected the contacts will be open when power and video are working. If (NC) Normally Closed contacts are desired follow the steps below.

1. Remove the four black screws in the outer most corners of the product enclosure. These are the recess flat-head screws. DO NOT REMOVE THE PAN HEAD SCREW THAT ARE AT THE INSIDE EDGE OF THE BOX.



2. Locate the black jumper jacks next to the relays on the top of the PC Board. There are three gold pins under each jumper jack. Select (NO) for Normally Open. "NO" will cause the alarm contacts to close when the video fails. Or (NC) for Normally Closed. "NC" will cause the alarm contacts to open when the video fails. Make sure, that you place the jumper jack on two of the three pins for each of the 4 channels A-D. The top of the PC Board is marked with graphic to make programming easy.
3. Replace the four black screws in the outer most corners of the enclosure.

### CG-4 SPECIAL OPTIONS (Factory Modified).

The CG-4 can be modified to detect Black or Blue full screen video. This option is identified by the part number CG-4BLUE. This option has all the same features as the CG-4 except the "WHITE" detection has been replaced by a "BLUE or BLACK" detection system.

The main use for this option is to detect the blue or black screen signal that is put out by most digital equipment. When a video signal stops inside most digital equipment the equipment maintains its video output by switching to an internal generator that outputs a solid color blue or black screen image along with the video synchronizing pulses.

When the unit is connected to any video device that outputs a full screen BLUE or a full screen BLACK picture the CG-4 will change its output relay state. It alarms when a blue or black screen is detected. To use this feature the units must be modified at the factory and the detection jumper must be in the "W" position.

The level of blue/black can be set with an internal adjustable control if minor level changes need to be made at setup. After setup no future adjustments are necessary.