CG-X

AUTOMATIC VIDEO LOSS A/B SWITCH

INSTRUCTION BOOK
IB647502

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DESCRIPTION

The **CG-X Camera Guard** system supervises the signal continuity of a video signal from CCTV cameras or any video source. This supervisory system will identify loss of the video signal due to removal of the camera, covering the camera lens, loss of power to the camera, a camera cable disconnect, or a defective camera. The CG-X supervisory system continuously monitors and displays the "video on" condition of the video source or camera. Use it to monitor any video source and if loss occurs switch to another video source. This unit separates the video detector from the A/B switch so it can be used to switch a separate video source when the monitored video fails.

Normally Open or Normally Closed Alarm contacts are provided 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 output to external dialing equipment. It can be used to shut down equipment such as gas pumps when the video fails.

The CG-X 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-X increases the level of security provided by the CCTV system.

The CG-X Camera Guard can be connected anywhere between the camera and the Monitor equipment in the video path. You can connect it near the camera to activate a local alarm, or at the monitor location to alert monitor personal or to shut down equipment.

It provides a "Loop-through Input" that will not affect the picture quality or the video level. The unit can be configured to detect the loss of SYNC or luminance (White level) that indicates the power to the camera is off, the coaxial cable is "disconnected", the camera lens is covered, or the Wireless Transmission system/Fiber optic system has lost its signal.

It can also detect the loss of end of line equipment like public monitors or down stream equipment by configuring the unit to monitor for termination resistance. If the end of line equipment is removed or disconnected the alarm relay will activate providing security for the exposed equipment.

Use this unit in any CCTV installation that requires guaranteed continuous video monitoring. Use the CG-X to monitor the cameras in sensitive areas like loading docks or any area subject to the unauthorized movement of product or stock. Or use it to determine if you have an intermittent failure problem in any CCTV system. The CG-X has an easy mounting flange that will mount to any surface with just two screws and is supplied with a 12 VDC power cube.

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-X 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 cost at installation.

HOW TO CABLE THE CG-X

Attach the cable coming from the Primary video camera to one of the two BNC connectors marked "A" on the detector side of the unit. Both of these connectors marked "A" are internally connected together as a loop through. Next use a short jumper to connect the remaining BNC connector marked "A" on the detector to the BNC connector marked "A" on the switch side of the unit. This will loop the primary video source through the detector and into the A/B switch on the A side. Then connect the secondary video source to the BNC connector marked "B" on the switch side of the unit. The BNC connector marked "COM" should be connected to the Video recorder or other video equipment to receive the video switched signal. BE SURE TO TERMINATE THE END OF THE VIDEO CABLE WITH A 75 OHM TERMINATION OR PROPERLY TERMINATE INTO OTHER EQUIPMENT.

POWER SUPPLY INSTALLATION

The CG-X is powered by a 12 VDC wall mount power transformer. Just plug the 12 VDC connector into the jack marked "12V". The Green LED will not illuminate until both the power supply and the video is applied to the "A" input.

OPERATION

When video is applied to the CG-X 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 and turn off the green LED and switch the A/B switch to the secondary channel "B". The Relay output contacts are field programmable for normally open or normally closed. You may choose SYNC detect, LUMINANCE detect, or Termination detect by moving the field programmable jumpers on the inside of the box. J1 Jumper on one pin only will detect "SYNC". Use this for normally dark images or scenes. Jumper J1 on the two pins marked "W" will detect the loss of luminance or white level like when a camera lens is covered and will activate the LUMINANCE detectors so both SYNC and WHITE level will be used to activate the alarm contact output. When J1 is in the "T" position it will detect the loss of terminal equipment like a monitor disconnect or cut cable. To protect monitors in public places from tampering or removal you can use this contact to send an alarm if the monitor 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-X is completely isolated from ground to prevent ground loops from occurring due to installation of the IP-X. Each camera connection is also isolated from each other to prevent ground loop creation between cameras. The CG-X will not induce ground loops.

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. If (NC) Normally Closed contacts are desired follow the steps below.

1. Remove the four black screws in the outer most corners of the top lid 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 ON THE TOP SIDE.

2. For contact relay output locate the black jumper jack on J2, next to the relay on the top of the PC Board. There are three gold pins under the jumper jack. Select (NO) for Normally Open or (NC) for Normally Closed and place the jumper jack on two of the three pins. The top of the PC Board is marked with graphic to make programming easy. Note for relay contact outputs the J2 jumper must be in the "C" position and only one shunt on the middle two pins only.
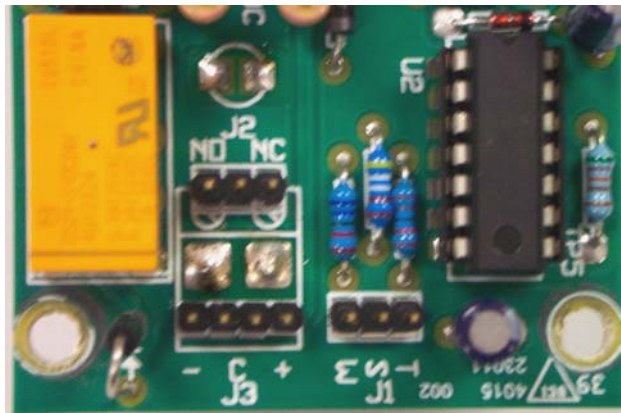
3. For Low Voltage output operation position one shunt onto J3 connecting the outermost two pins at the (+) mark and another shunt onto J3 at the other outermost two pins at the (-) mark. There should be two jumper shunts on this jack for supply voltage output. Then choose normally ON or normally OFF operation for the low voltage output and J2. For low voltage supply output this unit is available in two versions. The voltage output is supplied from the main 12 Volt power source.
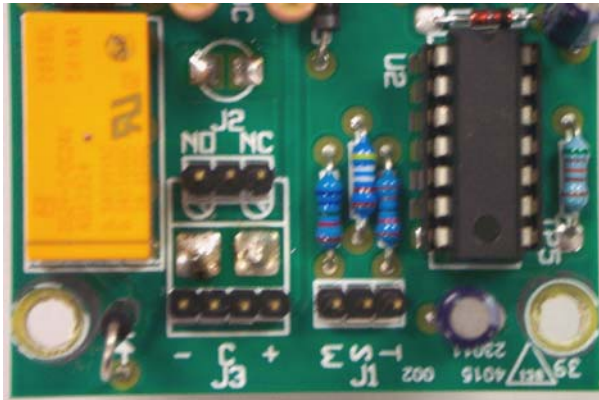
4.   Replace the cover and the four black screws in the outer most corners of the enclosure.

CG-X SPECIAL OPTIONS (Factory Modified).

     The CG-X can be modified to detect Black or Blue full screen video. This option is identified by the part number CG-XBLUE. This option has all the same features as the CG-X 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-X 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.