



Spyglass-Pro Product Manual

Spyglass-Pro Analog AV

Spyglass-Pro HD/SD-SDI Analog Audio

Spyglass-Pro HD/SD-SDI Embedded audio

Version 1.0

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Section 1. Spyglass-Pro Product Overview

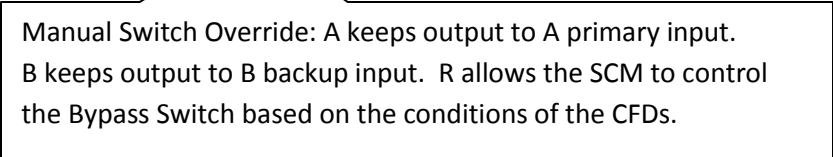
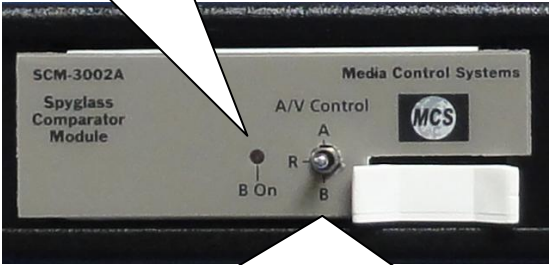
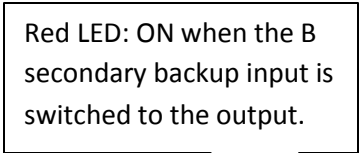
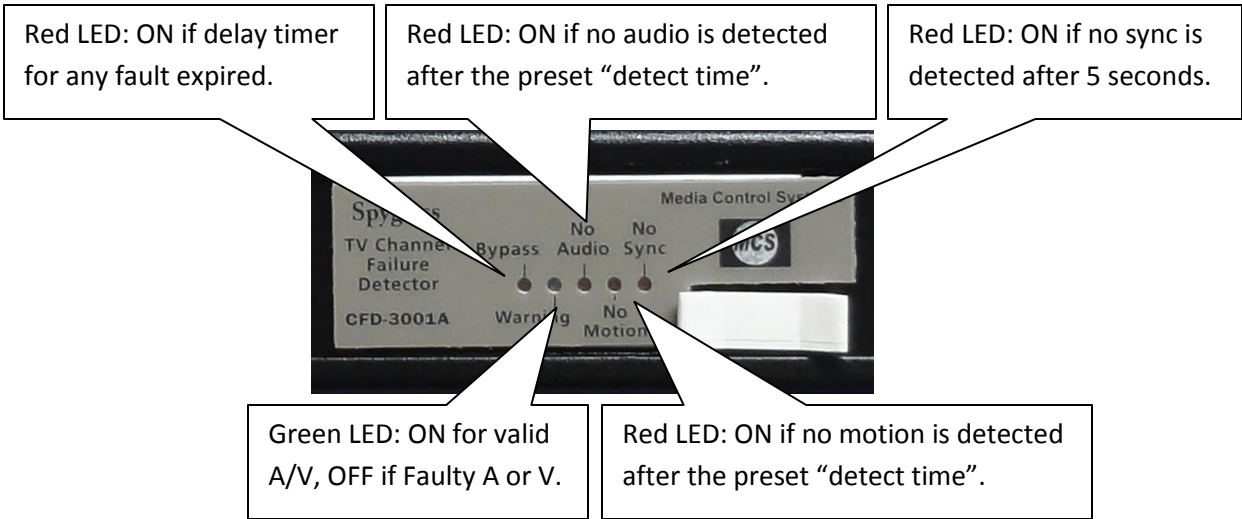
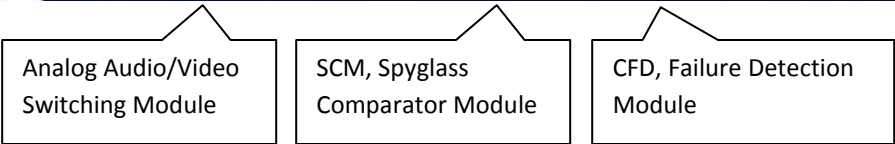
The Spyglass-Pro is a version of the Spyglass TV channel failure detector product line that includes a web microcontroller that provides web status and control, and a CFD channel failure detector module. The Spyglass also includes audio and video bypass switching.

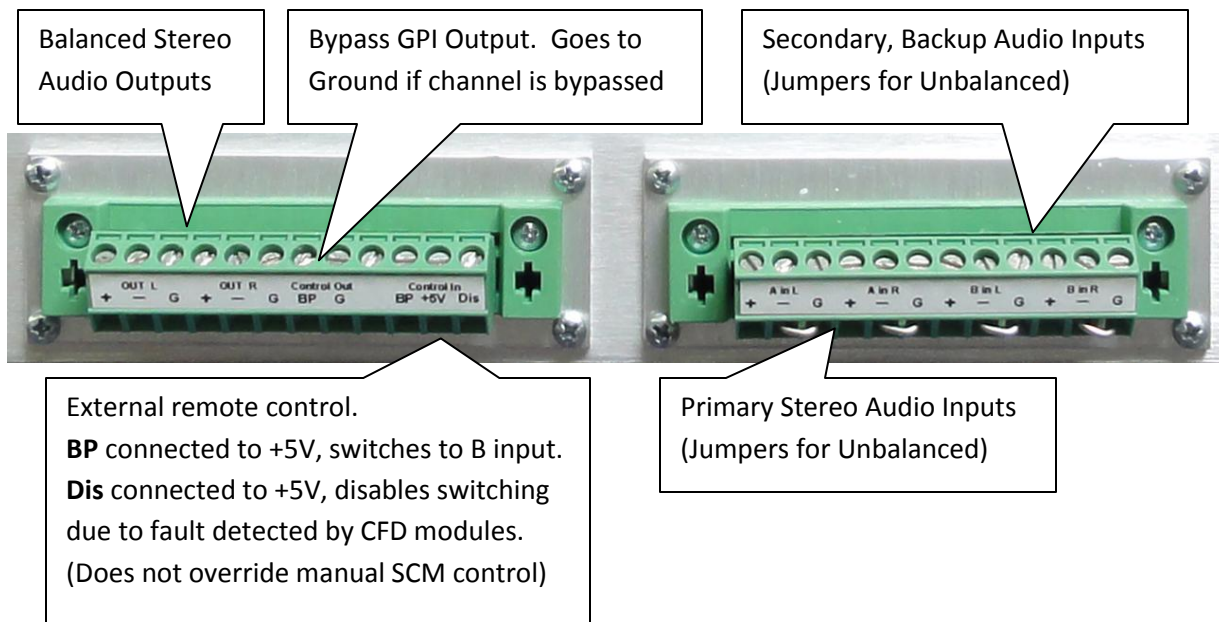
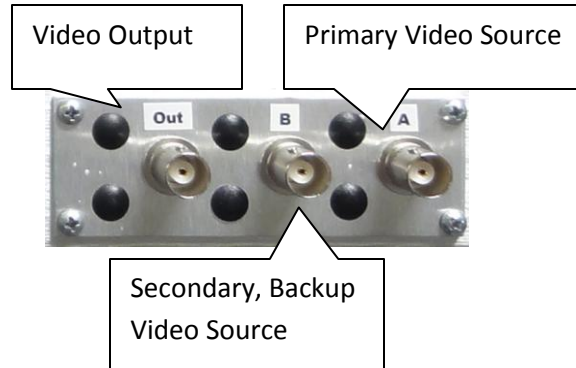
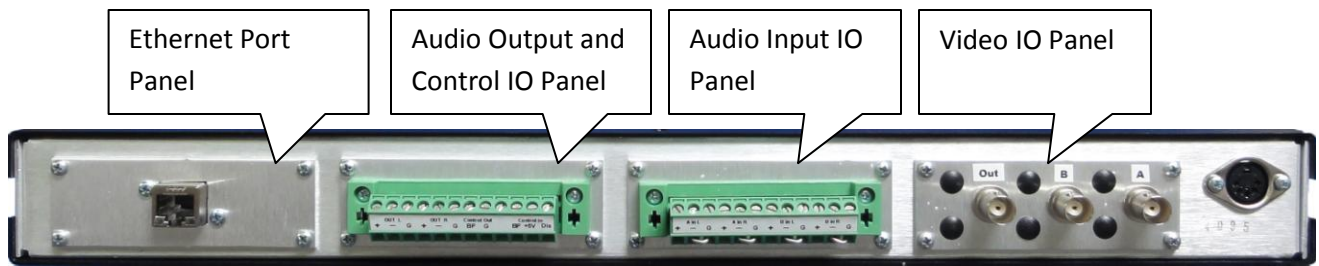
The Spyglass-Pro is available in analog audio and video, HD/SD-SDI video with analog audio, and HD/SD-SDI with embedded audio. The Spyglass-Pro is available with discrete digital audio on a custom built base.

The Spyglass-Pro includes a SCM, Spyglass Comparator Module that monitors the output status of one or two CFD modules. The SCM provides switching control and includes an audio mixer that mixes balanced stereo to a mono signal to each of the CFD modules.

The SCM includes a front panel toggle switch that allows the operator to place the A/V switch in the A primary position, B secondary position or R remote controlled by the SCM. The SCM allows switching to the back-up channel only if the back-up channel has good audio and video, if the dual detector version is purchased.

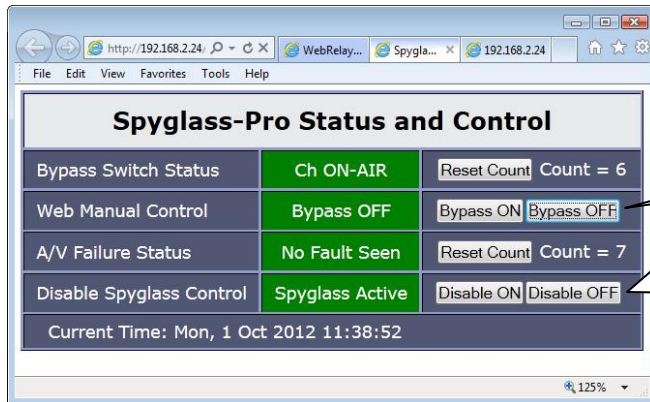
Section 2. Spyglass-Pro Controls, Indicators, and IO





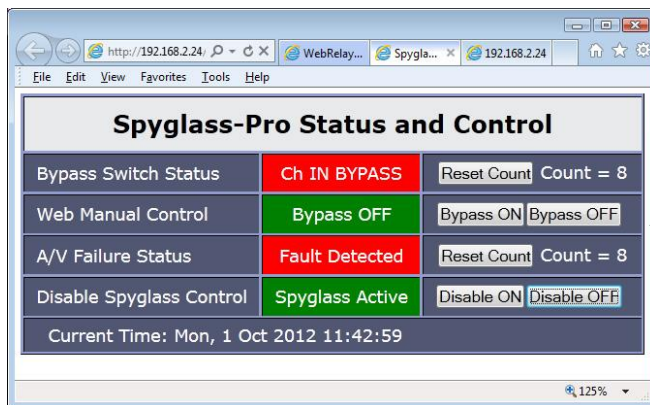
Section 3. Spyglass-Pro Web Status and Control

The status of the Spyglass-Pro can be accessed using a web browser after the IP address has been set up on the Spyglass web microcontroller. Setup instructions can be found in this section.



Switch the Secondary B Input to the Output. (Override your channel for maintenance.)

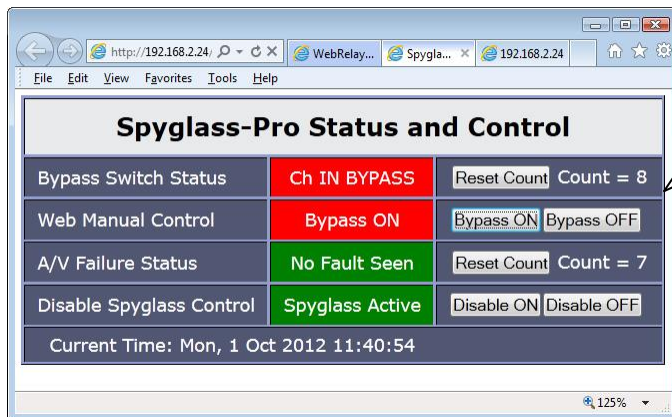
Disable ability for CFD to switch inputs due to A/V fault. (Prevent switching for programs with more than 17-minutes of no motion.)



Status showing an A/V fault on the A primary input. The B secondary input was switched to the output.



Status shows A/V fault was detected on primary input, but the Spyglass was overridden from the SCM front panel switch, to stay on A Input.



Status showing Spyglass was placed in bypass, from the Web interface. (Input B switched to the Output)



Status showing Spyglass was disabled from the Web interface. Spyglass will not go into bypass due to A/V Fault.

Section 4. Spyglass-Pro Web Controller Setup

The Spyglass-Pro uses the WEB Relay X-301 for status monitoring and control. This section covers the setup for the X-301.

The X-301 is controlled using a web browser and network connection. The IP address default from Control-by-Web is 192.168.1.2. To access the X-301 Setup, type 192.168.1.2/setup.html

The User Name is “admin” the Password is “webrelay”. The Relay Status screen is 192.168.1.2 | The Log is 192.168.1.2/log.txt | The system log is 192.168.1.2/syslog.txt. To see the Spyglass control and status screen just type in the IP address. 192.168.1.2

The following screen is used to change the IP address and email address. Cycling the power is required after changing the IP address. Date and Time is changed under the Date/Time tab. The X301 DOES NOT SUPPORT SECURED EMAIL PROTOCOL. An unsecured email service account must be used. Optional external email devices can be purchased that use secured email accounts.

The screenshot shows a web browser window with the address bar displaying <http://192.168.2.24/scriptSetu>. The browser has two tabs: "WebRelay-Dual" and "Spyglass-Pro Status and Control". The page title is "Setup". The "Network" tab is selected in the navigation menu. The page content includes a note: "*Network parameters require reboot before they take effect." The "Use DHCP" section has "Yes" selected. The "IP Address" is 192.168.2.24, "Subnet Mask" is 255.255.255.0, "Gateway" is 192.168.2.1, "Preferred DNS Server" is 68.105.28.11, and "Alternate DNS Server" is 68.105.29.12. The "HTTP Port" is 80. The "Speed" is 10 Mbps and "Mode" is Half Duplex. The "Mail Server(SMTP)" is mail.gmx.com, "Mail Server Port" is 25, "User Name(If Required)" is tcummins58@gmx.com, "Password(If Required)" is masked with dots, "Return Email" is tcummins58@gmx.com, and there are five empty fields for "Email 1" through "Email 5". At the bottom, there are "Submit" and "Reset" buttons.

Parameter	Value
Use DHCP	Yes
IP Address	192 . 168 . 2 . 24
Subnet Mask	255 . 255 . 255 . 0
Gateway	192 . 168 . 2 . 1
Preferred DNS Server	68 . 105 . 28 . 11
Alternate DNS Server	68 . 105 . 29 . 12
HTTP Port	80
Speed	10 Mbps
Mode	Half Duplex
Mail Server(SMTP)	mail.gmx.com
Mail Server Port	25
User Name(If Required)	tcummins58@gmx.com
Password(If Required)
Return Email	tcummins58@gmx.com
Email 1	tcummins58@gmx.com
Email 2	
Email 3	
Email 4	
Email 5	

After setting the IP address, the time and date setting are the only changes to the setup that are required.

CHANGING ANY OTHER SCREEN SETTINGS CAN AFFECT THE INTENDED OPERATION OF THE SPYGLASS-PRO. CHANGING OTHER SETTINGS IS NOT RECOMMENDED.

Set time and date for logging reports.

Current Date/Time: Fri, 9 Nov 2012 14:16:24

Set Time: Manually

Date:

November 2012						
Su	Mo	Tu	We	Th	Fr	Sa
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

Time (24 Hour Format): 14 : 16 : 00

Daylight Savings: Yes No

Daylight Savings Start: 2nd Sun Mar

Daylight Savings End: 1st Sun Nov

Submit Reset

The Spyglass-Pro can be placed in Bypass or Disabled based upon a time schedule. Bypass is controlled from Relay #1. Disable is controlled from Relay #2

Event #	Start Date/Time	Period	Count	Relay #	Action	Pulse	Next Occurrence
01 - Disable Ch8 Spyglass	W 09/12/2012 20:00:00	1 Hours	1	2	Turn relay on	...	Inactive
02 - Bypass Ch12 Spyglass	Th 09/13/2012 08:00:00	1 Hours	1	1	Turn relay on	...	Inactive
03 - Disabled							
04 - Disabled							
05 - Disabled							
06 - Disabled							
07 - Disabled							
08 - Disabled							
09 - Disabled							
10 - Disabled							
11 - Disabled							
12 - Disabled							
13 - Disabled							
14 - Disabled							
15 - Disabled							
16 - Disabled							
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26 - Disabled							
27 - Disabled							
28 - Disabled							
29 - Disabled							
30 - Disabled							
31 - Disabled							

Section 5. Spyglass-Pro Log Reports

Text log reports can be access using a web browser and accessing the ip address /log.txt 192.168.1.2/log.txt

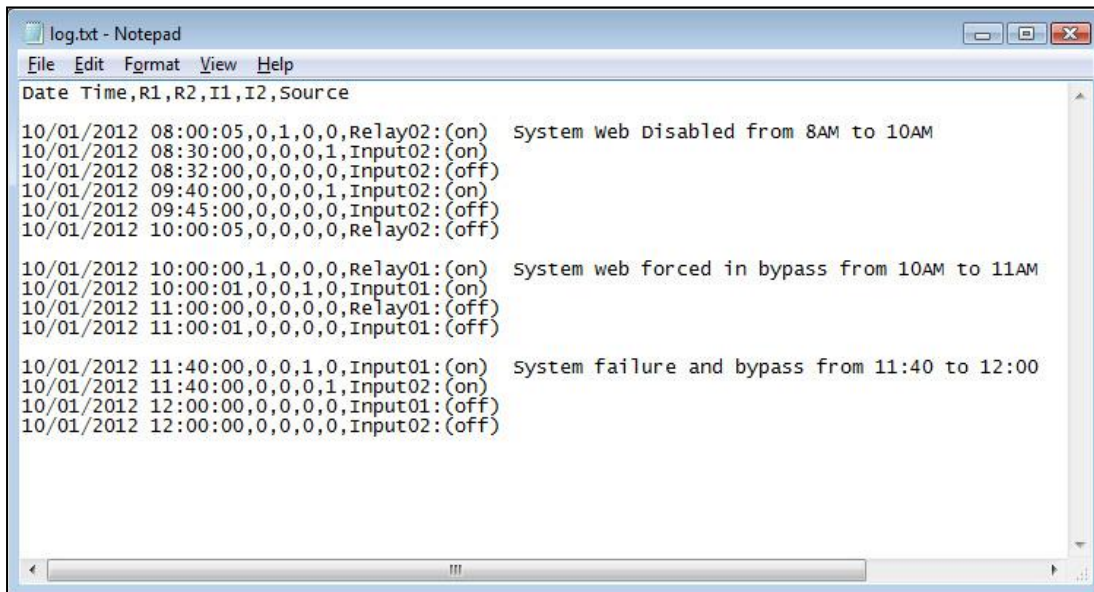
The log shows the date and time of the logged event. Logged events are reported from the inputs and outputs of the web X301 controller.

R1 is the relay used to place the system into bypass.

R2 is the relay used to place the system into disable.

I1 is the input used to monitor A/V faults.

I2 is the input used to monitor the bypass switch control.



```
log.txt - Notepad
File Edit Format View Help
Date Time,R1,R2,I1,I2,Source
10/01/2012 08:00:05,0,1,0,0,Relay02:(on)  system web Disabled from 8AM to 10AM
10/01/2012 08:30:00,0,0,0,1,Input02:(on)
10/01/2012 08:32:00,0,0,0,0,Input02:(off)
10/01/2012 09:40:00,0,0,0,1,Input02:(on)
10/01/2012 09:45:00,0,0,0,0,Input02:(off)
10/01/2012 10:00:05,0,0,0,0,Relay02:(off)

10/01/2012 10:00:00,1,0,0,0,Relay01:(on)  system web forced in bypass from 10AM to 11AM
10/01/2012 10:00:01,0,0,1,0,Input01:(on)
10/01/2012 11:00:00,0,0,0,0,Relay01:(off)
10/01/2012 11:00:01,0,0,0,0,Input01:(off)

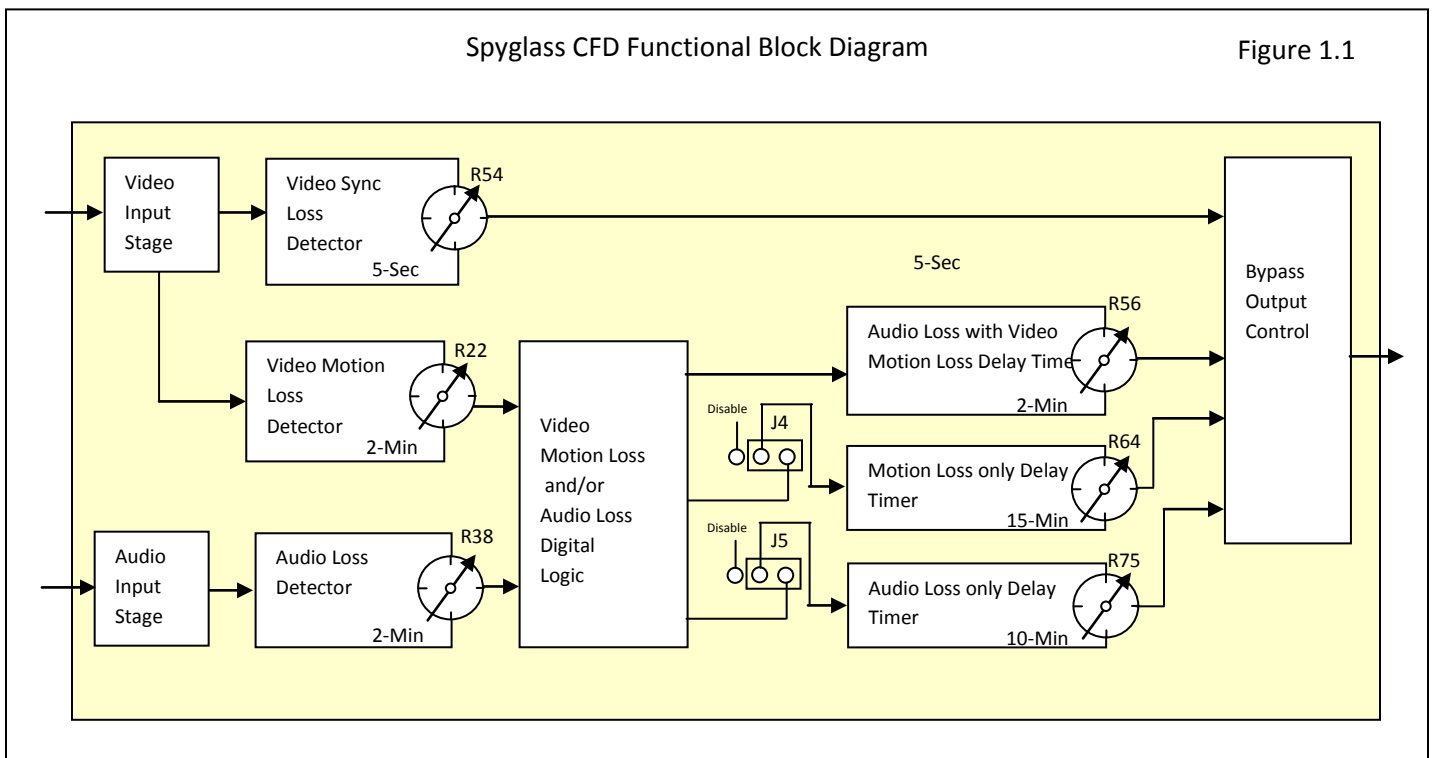
10/01/2012 11:40:00,0,0,1,0,Input01:(on)  system failure and bypass from 11:40 to 12:00
10/01/2012 11:40:00,0,0,0,1,Input02:(on)
10/01/2012 12:00:00,0,0,0,0,Input01:(off)
10/01/2012 12:00:00,0,0,0,0,Input02:(off)
```

Section 6. Channel Failure Detector Module (CFD)

The Spyglass Detector Module (CFD-3001A) looks at three signal parameters, valid video signal presence, video motion, and audio signal presence. Each of these signal parameters is evaluated in different ways to determine the type of failure and what the response time should be before action is taken. Delay timers are employed to prevent false triggering on valid programming material.

A video input signal is considered valid if vertical sync pulses are detected. If the input signal is just noise or if the input video is very low or not present at all, a failure is detected after an evaluation time of 5-seconds.

A valid program may have a period of time when no audio or no video motion is intended. Thus delay timers are used to determine how long a period is allowable for no audio and/or no motion. The default time is set for 10-minutes for no audio only, and 15-minutes of no motion only. The operator can adjust the timers if longer or shorter delay times are desired. If there is no audio and at the same time there is no motion, the default time before action is taken is 2-minutes. No motion only detection or no audio only detection can be disabled and these parameters will be ignored. (See figure 1.1)



6.1 Failure Detection and Time Delay Parameters

Video Input Sync Detection

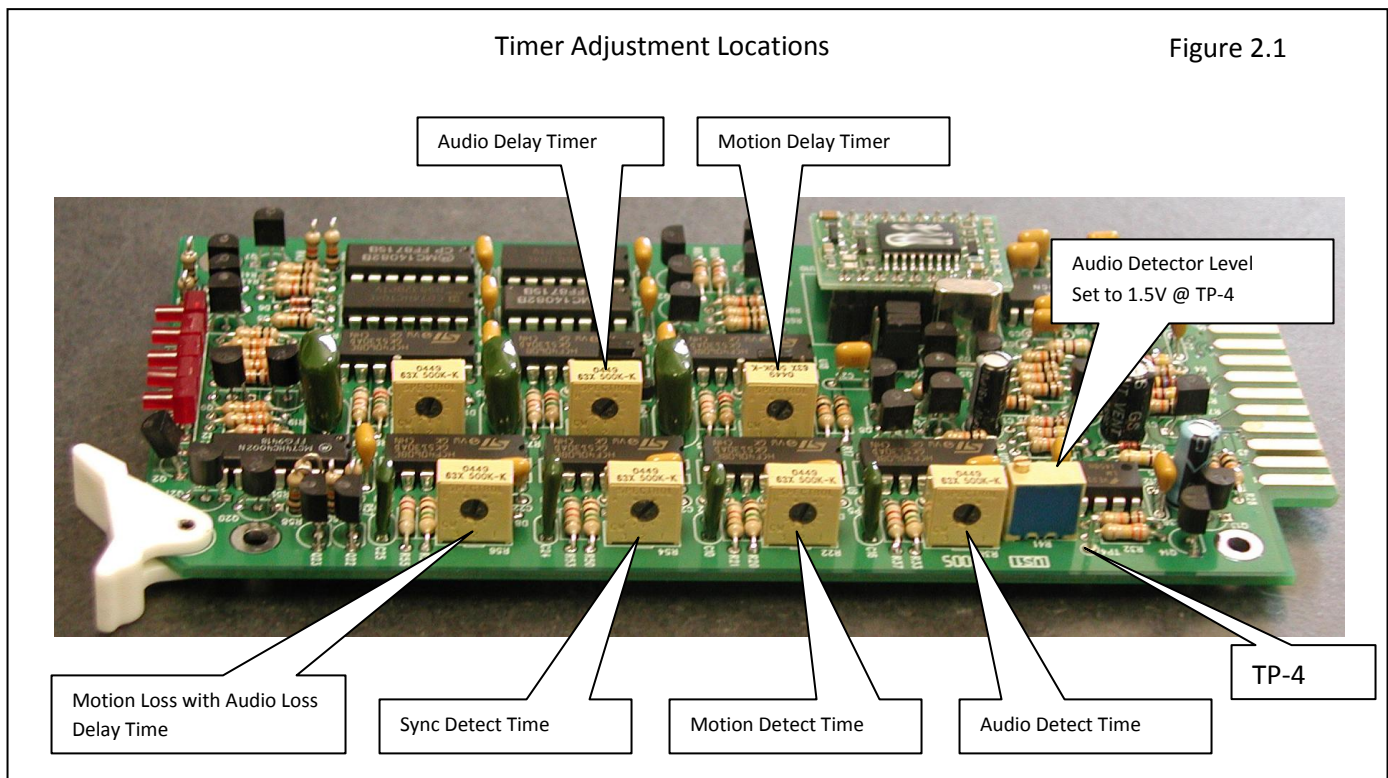
The CFD-3001A expects a 1V P-P Composite Video Input terminated at 75 ohms. Typically the video would be looped through the CFD's host frame and terminated at its final connection. If not a terminating resistor is required at the input connector of the frame.

The CFD checks the input signal for vertical sync pulses. If sync pulses are present and are above 200-millivolts in amplitude the detector is satisfied. Should the input drop below 200-millivolts or lower, the 5-second sync detector timer is started. After a 5-second time-out the bypass output is activated. Should the signal return before the 5-second time-out the timer is stopped and no output is activated.

If the input signal is noise (snow) from a tuner or satellite receiver, no vertical sync pulses will be detected and the sync detect timer will be engaged.

The CFD is very tolerant of poor video quality, if any vertical sync pulses are present, even though intermittent, the detector will remain satisfied and will not bypass the channel.

The Sync timer can be adjusted from 2-seconds to 10-seconds. (See Figures 2.1, 2.2, 2.3, 2.4)



6.2 Video Motion Detection

Incorporated in the CFD is a very sophisticated video motion detector processor. The processor analyzes each frame of video and compares it to other frames in its buffer. If it detects that content in the frames has changed from frame to frame it provides a motion detection output. Movements of small objects may not be detectable so time is required to search for movement in video.

The default detect time is set at 2-minute. It is common for normal video programming to have very little motion for more than a minute. As a result the CFD incorporates two additional video delay timer functions after the detector timer has expired.

The first second-stage timer function looks at both audio presence and video motion together. If no audio is detected after 2-minutes and no motion is detected after 2-minutes a secondary timer is started and runs for an additional 2-minutes. If audio or motion hasn't returned after this combined 4-minutes the bypass output is activated.

Another second-stage timer is activated if no motion is detected after 2-minute and the audio is ok. This timer is set for 15-minutes. This time is adjustable from approximately 3-minutes to 18-minutes. This timer stage can be disabled with a jumper if you do not want this secondary timer to be engaged.

The purpose of using motion detection is to detect a frozen frame from an MPEG-2 Decoder, frame synchronizer, and blue or black outputs from a failed or stopped media device.

(See Figures 2.1, 2.2, 2.3, 2.4)

Default Detection and Delay Time Settings

Figure 2.2

<u>Detection Time</u>	<u>Delay Before Alarm Output</u>
Sync Loss Detection Time: 5-Seconds	Delay Time: 0-Seconds
Audio Loss with Motion Loss: 2-Minute	Delay Time: 2-Minutes
Motion Loss Only: 2-Minute	Delay Time: 15-Minutes (disable option)
Audio Loss Only: 2-Minute	Delay Time: 10-Minutes (disable option)

All timers are adjustable but any changes should be made with the assistance of MCS factory personnel.

6.3 Audio Presence Detection

The CFD expects to receive an audio input of typical audio levels, .5V to 4V P-P. If the audio levels drop below 200-millivolts, a 2-minute detection timer is started. If the audio stays at a very low level for over 2-minutes, secondary delay timers are started. The audio sensitivity level can be adjusted. The default level is set high enough to stay out of the noise floor but low enough to pickup very quite audio scenes.

Similar to the motion detection feature, the audio detector engages two secondary timers upon its expiration. One is the audio loss with motion loss timer and the other is an audio only loss timer. The audio only loss delay timer is set for 10-minutes. If audio doesn't return after the 2-minute detect time plus the 10-minute delay time the bypass output is engaged. The audio loss only delay timer is adjustable from approximately 3-minutes to 18-minutes. (See Figures 2.1, 2.2, 2.3, 2.4)

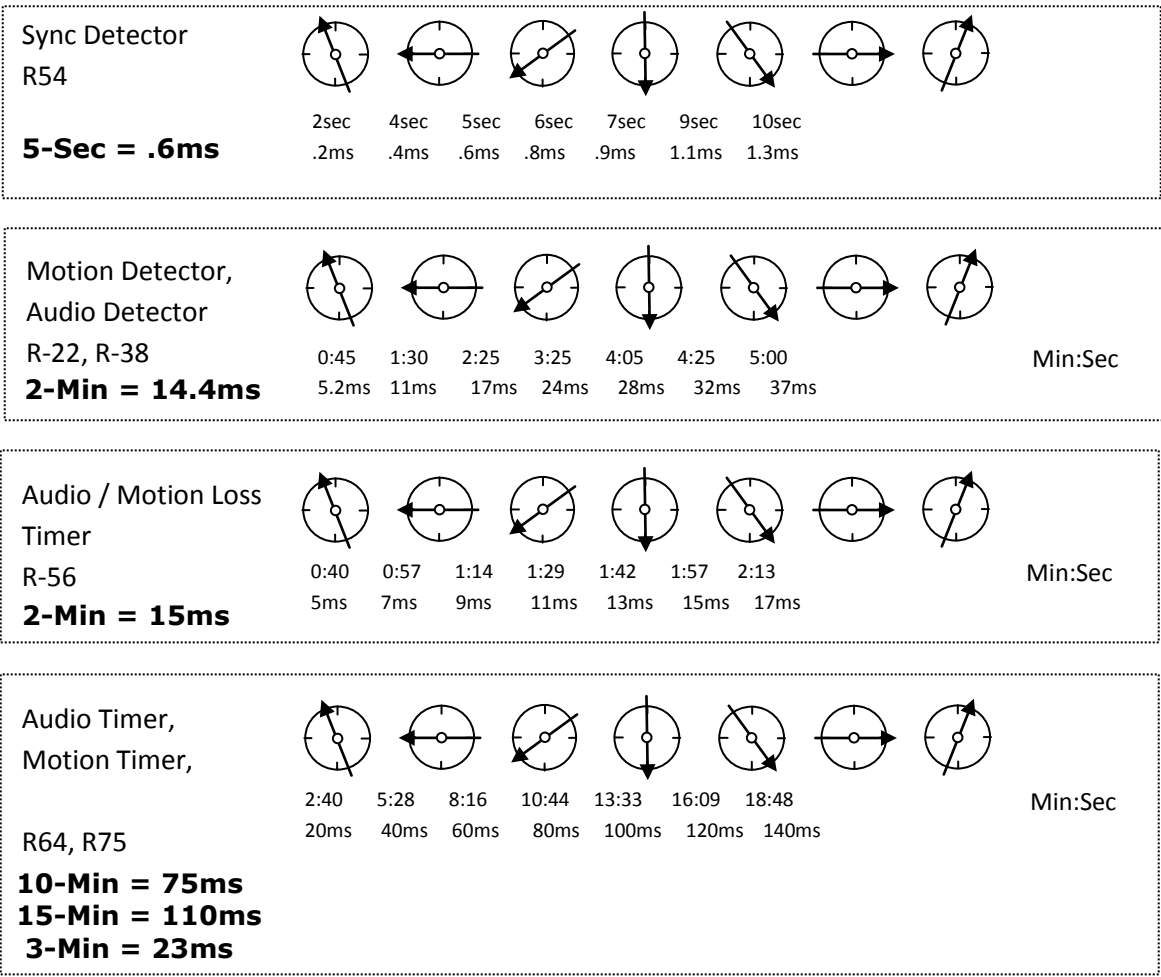
The audio only delay timer can be disabled with a jumper if this feature is not wanted.

6.4 Audio Loss with Video Motion Loss

The CFD has the capability of detecting in addition to blue or black screens, frozen picture outputs of digital MPEG decoders or frame synchronizers. Typically when these conditions occur there is no audio and a frozen picture. After the 2-minute detect time for the audio and motion detectors the secondary combined 2-minute A/V timer is started. When the 2-minute delay timer expires the bypass output is engaged. Both audio and video motion must return before the bypass output is disengaged. This prevents a premature return should a temporary glitch of video or audio noise glitch should occur under these bypass conditions.

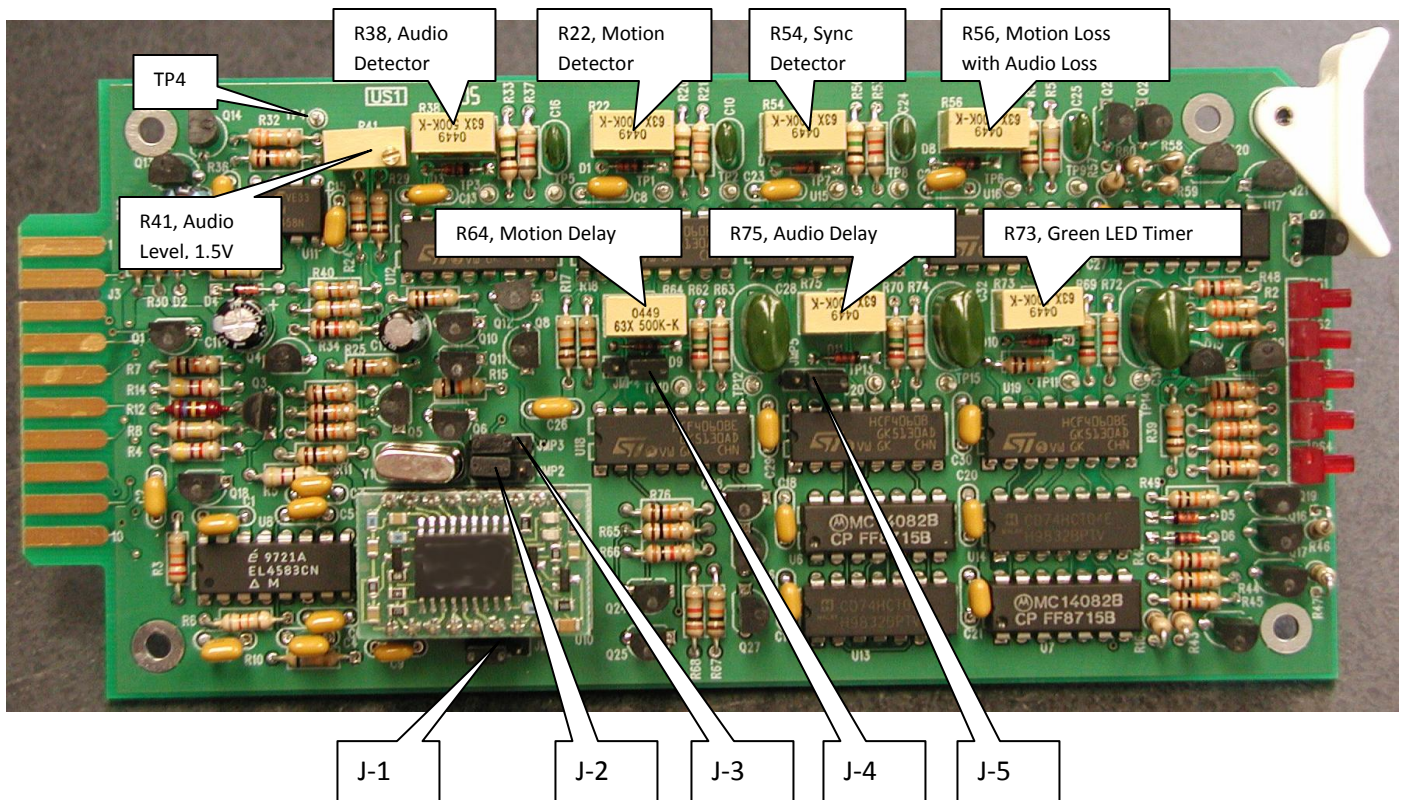
Approximate Timer Adjustment Settings

Figure 2.3



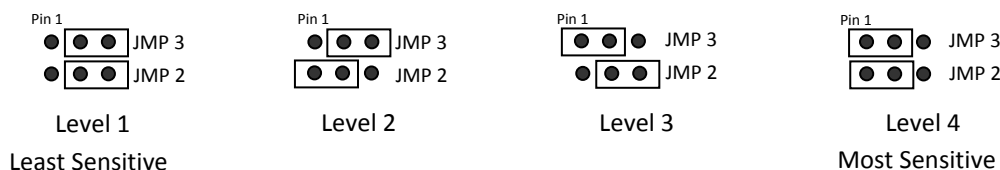
Jumper and Timer Locations

Figure 2.4



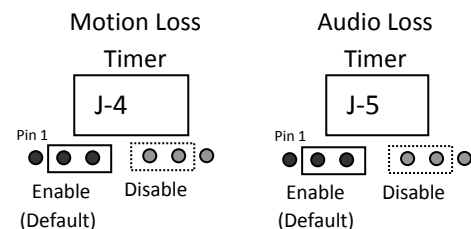
6.5 Motion Sensitivity Level Jumpers (*Factory Assistance Recommended*)

The sensitivity of the motion detector processor can be changed for special applications. **It is not recommended to change the setting under normal conditions.** The motion detectors ability to detect video motion has four sensitivity levels. The levels can be changed using Jumpers JMP1, JMP2 and JMP3. (See figure 2.4 for the location of the jumpers)

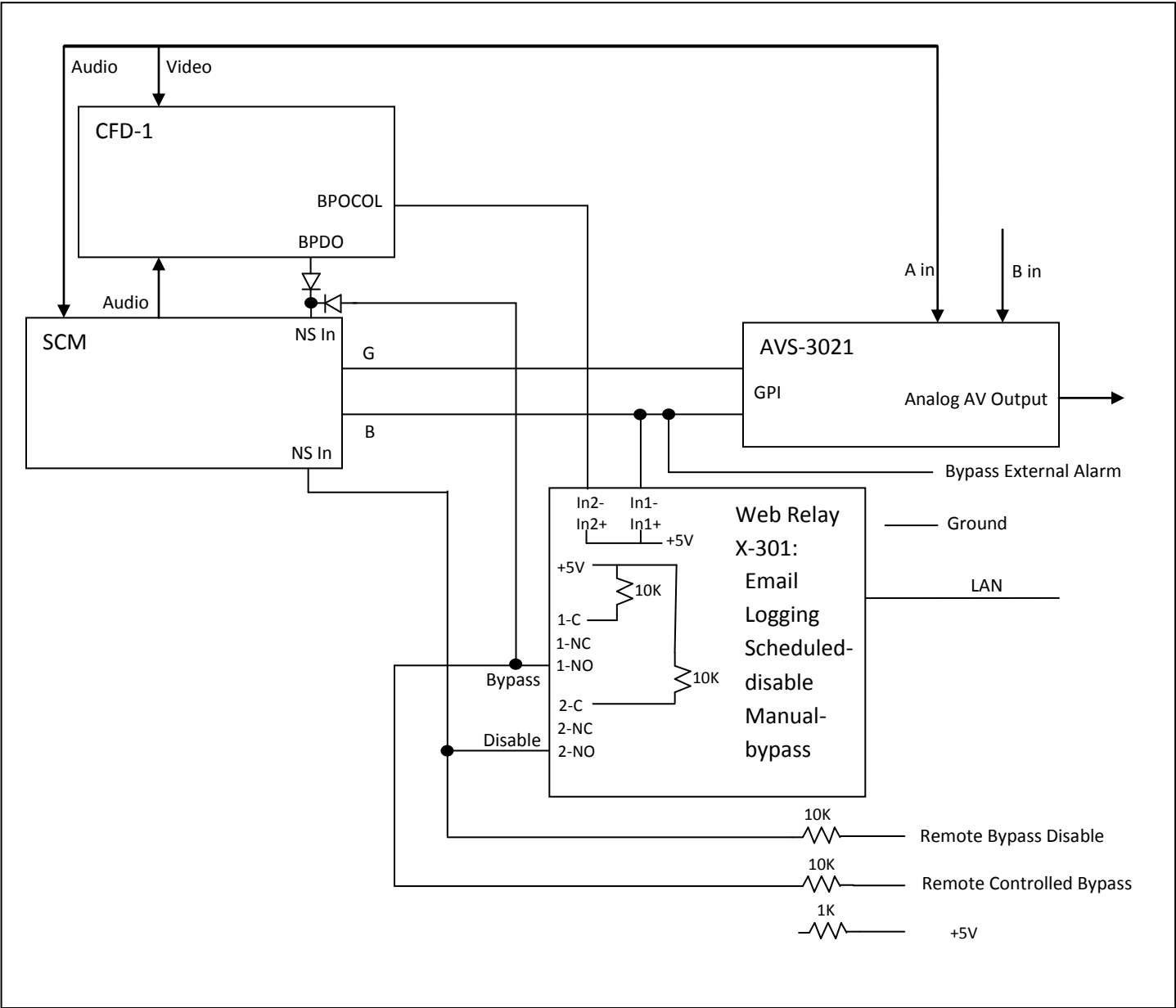


6.6 Motion Loss Only and Audio Loss Only Timer Disable Jumpers

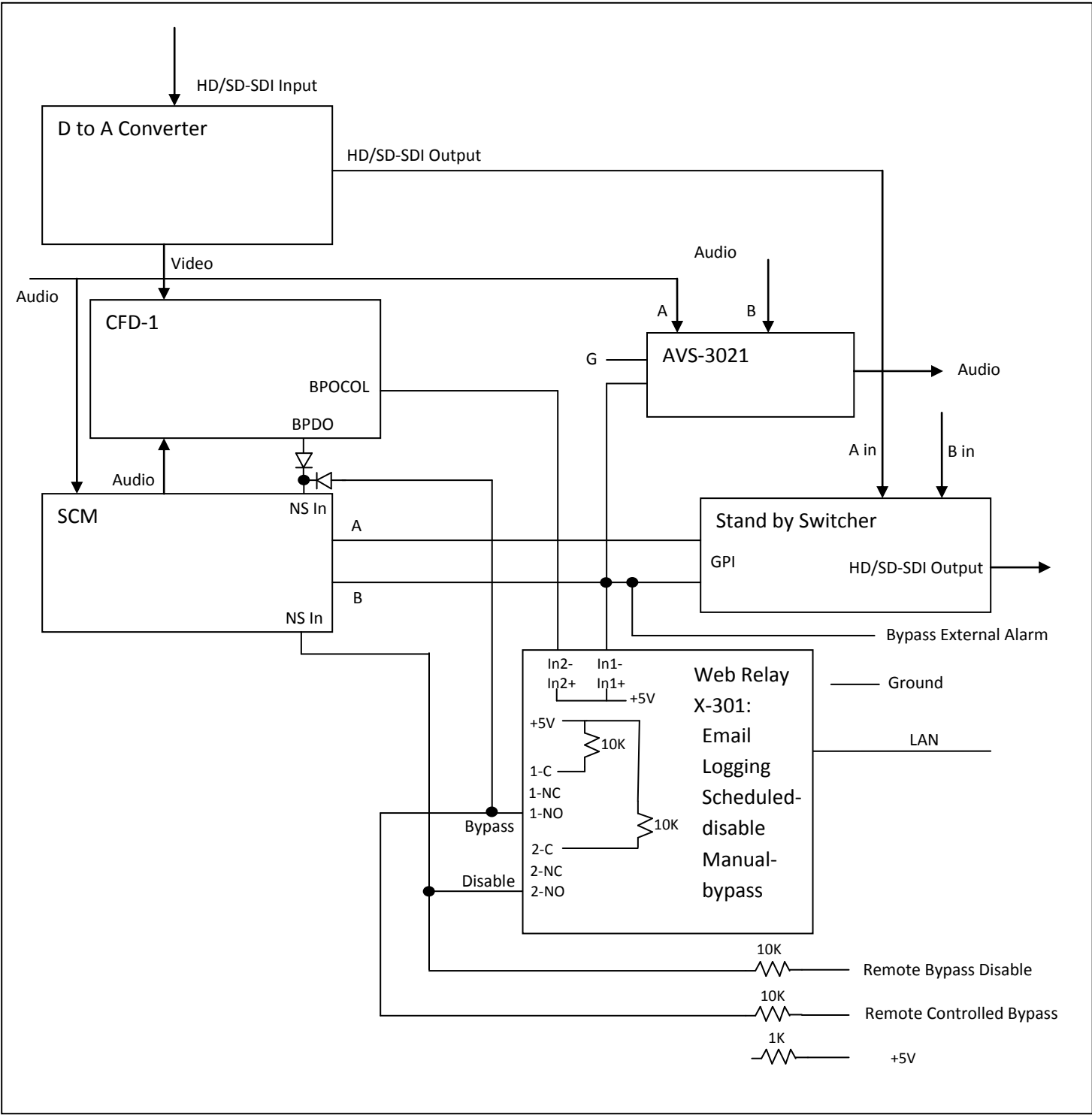
If there is a concern that the CFD will false trigger on valid programming, these jumpers allow an operator to disable the audio loss only and video loss only delay timers. (See Figure 3 for the location of jumpers)



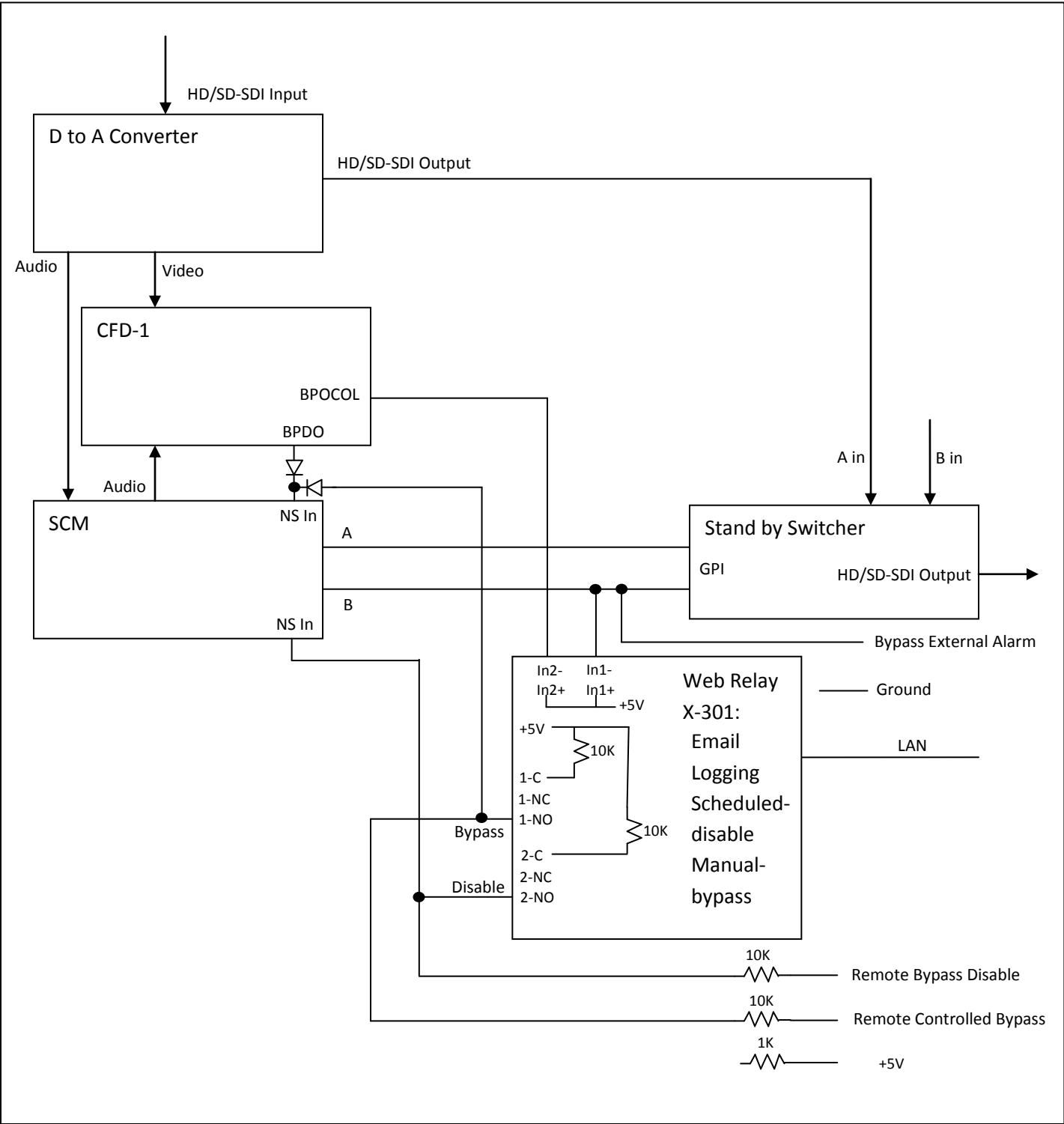
Spyglass-Pro Analog Audio and Video Block Diagram



Spyglass-Pro HD/SD-SDI with Analog Audio Block Diagram



Spyglass-Pro HD/SD-SDI with Embedded Audio Block Diagram



Limited Warranty

MEDIA CONTROL SYSTEMS, LLC, Warrants each new product manufactured by it to be free of defective materials and workmanship, and agrees to remedy any such defect by repair or replacement at no extra charge for a period of one (1) year from the original date of purchase.

This warranty does not extend to any MCS product subject to misuse, neglect, accident, improper wiring or installation, or used in violation of MCS instructions. Nor does it extend to equipment that has been altered outside MCS's factory without prior written approval, nor to equipment that has had the serial number removed, nor to accessories used herewith, which were not manufactured by MCS. Fuses and batteries are specifically excluded from this Warranty. Equipment sold by but not manufactured by MCS is warranted by the original equipment manufacturer.

The owner must deliver equipment covered by this warranty with all transportation charges prepaid, to the MCS factory for examination. If examination discloses, by MCS's judgment, that this is thus defective, the equipment will be repaired or replaced at no charge. Equipment returned prepaid under warranty and repaired in MCS's factory will be returned with all transportation charges, surface freight only, paid by MCS. Units that fail under conditions cited above, as being outside of the warranty extension will be repaired on a time-and-material basis after notification to and approval by owner. All freight incurred in repairing equipment not under warranty will be the responsibility of the owner.

In respect to any and all equipment furnished by MCS, this warranty is in lieu of any other warranty, obligation, or liability expressed or implied including warranty of merchantability or fitness for a particular purpose. No person, including a company representative, is authorized to assume for MCS any other liability in connection with the sale of its products.

Under no circumstances shall MCS be liable in contracts or in tort for any economic loss, including any loss of profits, or for any special or consequential damage.

All inquiries relating to either product operation or warranty service should be directed to:

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