INSTALLATION AND OPERATION MANUAL

Emergency Alert System
Virtual Controller

Revision 2.00

TRILITHIC

The Best Thing on Cable

PART NUMBER 0010210000

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Illustrations

Virtual Controller

The Virtual Controller is used to replace channels at a cable system remote hub. In conjunction with an **EAS Details Channel** demodulator, it provides all the EAS signals available from Trilithic controllers to replacement technology at remote locations. It is a "slave" device to the controller located at the primary headend. The Virtual Controller is an addressable device (250 possible addresses) capable of ignoring instructions not specifically meant for it.

Due to "Must Carry" laws, local television and governmental stations are required to be available to cable TV subscribers. Franchise agreements often require a telephone voice access to be transmitted to local subscribers. This means that local channels and voice must be inserted at hub locations, it does not, however, alleviate the responsibility of the cable system to insert EAS messaging on these remote channels. The Virtual Controller provides the means to distribute EAS messages on channels inserted at hub sites.

Overview of Virtual Controller System

Main Headend

The PSC-9xx Controller provides data to an AFSK device located in the EDS-1. When data is fed to the AFSK device (along with the appropriate RS-232 control lines), the program audio on the **EAS Details Channel** is temporarily interrupted by a 9600 Baud AFSK (Audio Frequency Shift Keying) signal containing switching and control information. When the AFSK transmission is completed, EAS audio and video is sent out to subscribers, and the cable Hub sites.

In an EASyPLUS system, no PSC-9xx controller is used, and the AFSK transmitter device is located on the EASyPLUS MainBoard.

Hub Site

Each Hub site contains an **EAS Details Channel** demodulator, as well as the equipment necessary to insert local signals into the cable TV Lineup. Audio from the **EAS Details Channel** demodulator feeds the Virtual Controller, as well as supplying EAS audio to the EAS replacement technology located at the hub site. The audio provided to the Virtual Controller provides the control information required for hub site activation.

The combination of **EAS Details Channel** demodulator and Virtual Controller provide the following outputs at the hub location.

From the EAS Details Channel Demodulator:

- EAS audio (provided by the **EAS Details Channel** during alerts)
- EAS replacement video (provided by the **EAS Details Channel** during alerts)
- EAS replacement IF (composite of **EAS Details Channel** audio and video)

From the Virtual Controller:

- Four IF outputs with switched DC insertion (IF from the demodulator is amplified and split. A DC level is inserted to power relays for replacement switching).
- RS-485 character generator control output (data).
- EAS TTL outputs (16 TTLs that mirror the PSC-9xx or EASyPLUS Controller rear panel)

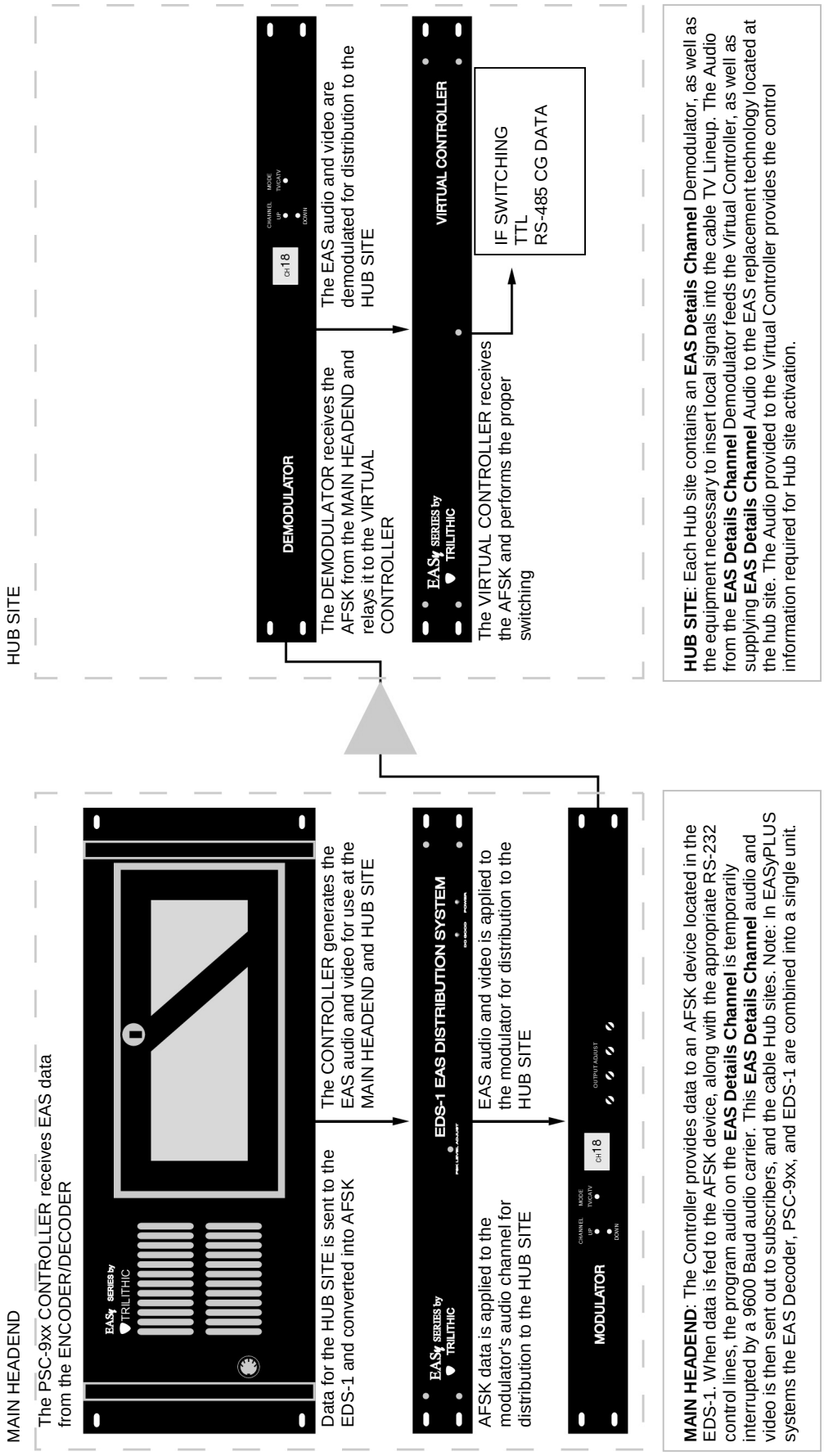


Figure 1 Virtual Controller System Overview

Overview of Equipment

Main Headend

Encoder/Decoder (or EASyPLUS combined unit)

EAS messages and local telephone accesses are received by the **Encoder/Decoder**, and communicated to the **PSC-9xx controller**. In addition, when commanded by the PSC-9xx Controller, the Encoder/Decoder supplies the EAS audio.

PSC-9xx Controller (or EASyPLUS combined unit)

The PSC-9xx Controller receives information from the **Encoder/Decoder**, and uses this information to generate EAS video, and control all other EAS devices. The PSC-9xx Controller supplies TTL signals to all the EAS switching equipment. Character generator data, EAS video, and EAS audio is sent to the EDS-1.

When AFSK data is enabled, the PSC-9xx Controller also supplies TTL commands, IF replacement commands, and CG data commands to the EDS-1 for transport to the hub site Virtual Controllers.

EDS-1 (or EASyPLUS combined unit)

The EDS-1 is divided into three interrelated sections, the Audio/Video distribution amplifiers, RS-232 to RS-485 converter, and optional AFSK transmitter.

The video distribution amplifier, among other things, provides video to the **EAS Details Channel** modulator. During EAS messaging, this video contains the same background and crawl that is used to replace non character generator channels. This video originates from the PSC-9xx Controller's internal character generator. This section is not present on the EASyPLUS.

The audio distribution amplifier distributes EAS audio from the Encoder/Decoder or PSC-9xx Controller. In addition, it provides a TTL activated switch for the **EAS Details Channel** program audio. This allows for the PSC-9xx Controller to switch EAS audio onto the **EAS Details Channel** in place of program audio. In an AFSK application, the switched EAS audio is routed through the AFSK transmitter board before it is routed out of the EDS-1.

The RS-232 - RS-485 converter is used to translate the CG Information coming from the PSC-9xx Controller, into RS-485 signals used by character generators located at the headend. In an AFSK application, it internally routes data and RS-232 handshakes to the AFSK board.

The AFSK board receives data and handshakes from the RS232-RS-485 converter. When the appropriate handshake line is active, the AFSK board switches its audio signal onto the **EAS Details Channel** audio port. As data is received, the AFSK board modulates its audio accordingly.

EAS Details Channel Modulator

The **EAS Details Channel** Modulator receives EAS audio and video from the EDS-1 (or EASyPLUS), and modulates it for export from the headend via RF or Fiber links. During alerts, the modulator inputs will be EAS video, and a combination of EAS audio and AFSK audio. The **EAS Details Channel** modulator RF output is fed to a combiner and sent out via RF or fiber to remote Hubs.

Hub Site

EAS Details Channel Demodulator

The **EAS Details Channel** demodulator receives the headends **EAS Details Channel**, and demodulates it into EAS audio and video. During EAS alerts, these outputs are functionally identical to the EAS video out from the PSC-9xx Controller and the EAS audio from the Encoder/Decoder. In addition, the demodulator provides an **EAS Details Channel** IF output that is functionally identical to the EAS IF modulator located at the headend. The audio and IF outputs are routed to the Virtual Controller, and the video output can be distributed for baseband replacement equipment.

Virtual Controller

The Virtual Controller receives EAS audio from the **EAS Details Channel** demodulator, and decodes the AFSK Instructions transmitted during EAS alerts. The EAS audio is routed back out of the Virtual Controller for use in baseband replacement equipment. The Virtual Controller receives EAS replacement IF from the **EAS Details Channel** demodulator, and provides this IF signal to four lossless output ports. A 12-Volt DC signal is inserted onto the IF outputs to switch SW-1s, SW-4s, SW-4Ps, or slave LS-16Ps. TTL level outputs are set to switch appropriate replacement technologies, and RS-485 data is available for character generator control. The combined outputs from the **EAS Details Channel Demodulator** and Virtual Controller provide all the signals needed to activate Trilithic EAS replacement technology.

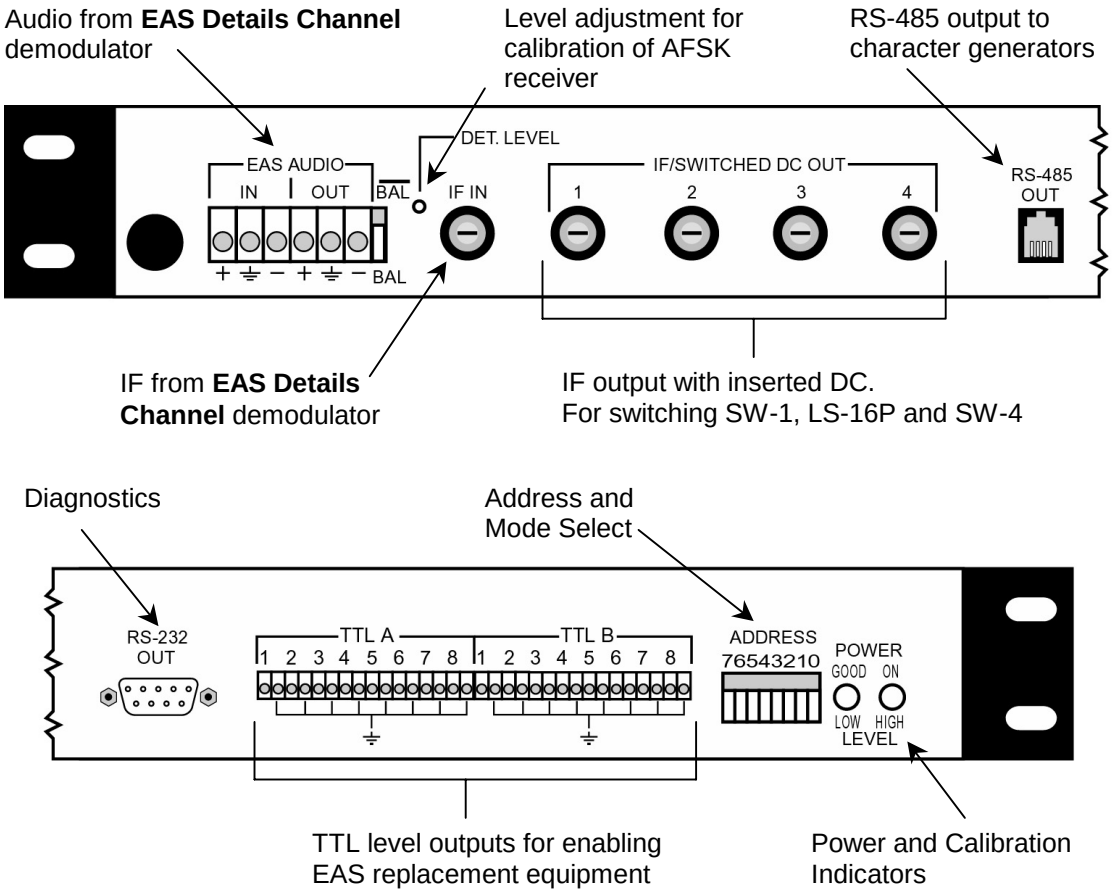


Figure 2 Virtual Controller Back Panel

Typical sequence of events (Hub and Headend replacement)

Time1: (1 minute) EAS message received by Encoder/Decoder.
"I Love Lucy" video is playing on Channel 5 (EAS Details Channel).
"I Love Lucy" audio is playing on Channel 5 (EAS Details Channel).

Time2: (1 second) Controller interrupts Channel 5 video with EAS Alert video.
AFSK Transmitter interrupts Channel 5 audio with Virtual Controller Commands.

Time3: (instantaneous) Controller interrupts video on all channels at main headend with EAS video.
Controller interrupts audio on all channels at main headend with EAS audio.
Virtual Controller interrupts video on all channels at Hub Site with EAS video from Channel 5 demodulator.
Virtual Controller interrupts audio on all channels at Hub Site with EAS audio from Channel 5 demodulator.

Time4: (1 minute) EAS message crawl is displayed on all channels, Headend and Hub.
EAS Audio message present on all channels, Headend and Hub.

Time5: (1 second) EAS Audio ends and Controller sends AFSK commands on Channel 5 audio.
Video and Audio replacements at headend return to normal except for Channel 5 (EAS Details Channel) which continues to display a static page and send AFSK.

Time6: (instantaneous) Virtual Controller drops replacements at Hub Site, all hub Site video and audio Resumes normal programming.
Controller at Headend drops substitution of Channel 5 audio and video, "I Love Lucy" returns.

Installation

AFSK Transmitter (Main Headend)

Systems With Existing EDS-1 EAS Distribution System

Systems with an existing EDS-1 EAS Distribution System will install the AFSK transmitter kit. Remove the EDS-1 and install the AFSK transmitter utilizing the kit installation instructions.

Systems Without EDS-1 EAS Distribution System

Systems Without an EDS-1 EAS Distribution System will install the EDS-1 EAS Distribution System with the AFSK option installed. The EDS-1 will contain the AFSK transmitter as well as circuitry for the **EAS Details Channel**. See **Figure 3** for typical installation. PSC-900 users must remove the RS-485 board in the PSC-900 and set the computers CMOS to enable COM2.

EASyPLUS Systems

The **EAS Details Channel audio** will be routed through the **EASyPLUS "AFSK switch"** prior to the EAS Details Channel **modulator**. See **Figure 4** for typical installation.

Virtual Controller (Hub Site)

The Virtual Controller will be installed at the remote hub site. The EAS Details Channel demodulator will supply the EAS audio and video. The audio from the demodulator will contain the AFSK to control the Virtual Controller. See **Figure 5** for typical Virtual Controller installation. Other hub site configurations are illustrated in the appendices.

Note: The Virtual Controller connectivity was designed to emulate the PSC-9xx series of controllers. See the EASy system manuals for details on wiring replacement equipment. Manuals and Application notes can be found at WWW.TRILITHIC.COM by clicking on the E.A.S Division link, then the information specific links on the left border of the screen.

Special Considerations for Comb Generators

Comb Generators located at the Headend provide unique difficulties in the installation of AFSK / Virtual Controller systems. Normally, a Comb Generator in installed at the combined output from the Headend, and can replace the EAS channel audio during transmission of AFSK control data.

One method of alleviating the problems is by "notching out" the EAS Channel frequency at the output from the Comb, and injecting the EAS Details channel modulator after the Comb and Trunk Switch. A clean notch filter is required for this to work.

Another method is to provide a duplicate EAS Channel on an "Out of Band" frequency, allowing the EAS Details Channel audio and video to be transmitted above or below the range of the Comb. This signal should be inserted after the Trunk Switch in a Comb system.

Ultimately, the AFSK / Virtual Controller combination requires an uninterrupted, clean audio source with a minimum of 15KHz bandwidth in order to communicate. Clean EAS Video and Audio must be available at all Hub sites to replace signals and carry instructions.

Calibration

AFSK Transmitter Calibration

AFSK calibration is conducted by varying an amplitude control on the AFSK transmitter (accessed through the EDS-1 front panel, or via EASyPLUS menus). When AFSK calibration is selected at the PSC-9xx Controller (or EASyPLUS), a continuous 9600 Hz sine wave is placed on the **EAS Details Channel**. Adjust the AFSK amplitude (via the front of the EDS-1) to provide **20 kHz audio deviation** at the **EAS Details Channel** modulator. EASyPLUS users should use the front panel controls or supplied PC software to activate and adjust the 9600 Hz tone.

An Alternative (and actually preferred) method of setting the deviation of the EAS Details Channel Audio, is to use a Demodulator connected in such a manner as to receive the Details channel. The Demodulator audio output is fed to an oscilloscope, and the 9600 Hz wave form should be visible. The AFSK level is then increased until the 9600 Hz signal starts to become asymmetrical, then decreased until the symmetry is perfect.

Care should be taken to insure that the EAS Details Channel video does not cause interference in the modulators audio. Video should be modulated at it's lowest acceptable level. Character Generator or "White Letter" interference is a common cause of noise on the audio channel. VCR and DVD sources may over modulate video by placing copy protection spikes in the video.

Virtual Controller Calibration

After the AFSK Transmitter calibration is completed, the Virtual Controller may be calibrated. Trilithic recommends that the first Virtual Controller and EAS Demodulator of the system be calibrated and tested at the Headend prior to installing at the Hub site. The Virtual Controller is calibrated using the same 9600 Hz sine wave as is used in calibrating the AFSK transmitter. Place the PSC-9xx Controller (or EASyPLUS) in the Virtual Controller Calibration mode (send carrier). Set the Virtual Controller Balanced/Unbalanced switch to the appropriate position (based on balanced or unbalanced audio from the **EAS Details Channel** demodulator). Set the Virtual Controller address switches to the calibration mode (all switches down). Adjust the input sensitivity control until both of the Virtual Controller LEDs are illuminated. Flickering of the LEDs may indicate a low or distorted audio signal, or an incorrect signal being sent to the EAS Details channel.

NOTE: All equipment utilizing the EAS audio must be installed prior to calibration to assure proper audio amplitude. If any equipment is added or removed from the EAS audio line, the Virtual Controller will need to be re-calibrated (input level adjusted).

After calibration, the Virtual Controller is placed in operational mode by setting its address. Any address from 1 to 250 places the Virtual Controller in operational mode. It is not necessary to remove power after an address change. See Appendix C for address and mode information.

Once in operational mode, the Virtual Controller should be tested to insure operational readiness. Most Trilithic controllers provide a means to flash the LEDs on the Virtual Controller in a recognizable pattern. The pattern should be predictable, and repeat itself perfectly again and again. If this test succeeds, an actual EAS message (Weekly Test) should be sent from the Headend to insure software is configured to use the Virtual Controller.

Notes on Virtual Controller addressing

Virtual controller addresses can be used by EASyNT systems, and EASyPLUS systems to activate specific Hub Sites according to county information supplied in received EAS messages. The software provided with these systems is used to provide the County/Hub association. Virtual Controllers within the same community may be configured with the same address to make software setup easier, or every Virtual Controller may have it's own unique address.

Addresses 1 through 250 are general addresses and may be used without consideration of order, so long as the addresses are recorded and correlated to location. If county routing is not used in a system, an address of 1 through 250 must still be used on each Virtual Controller in order to put it in operational mode.

Some EASyNT systems use Virtual Controllers at the Headend to activate Trunk Switches (via an SM-16), or individual EAS channels. These Virtual Controllers use addresses 251 through 254. Addresses 251 through 254 are unique in that they ignore commands issued to "All Virtual Controller" (Global address).

Selecting Address 000 causes a Virtual Controller to enter Calibration mode. In this mode, the LEDs on the rear panel activate according to the level of the input audio. The Low level LED indicates a need to adjust the Level control on the Virtual Controller in a clockwise direction (increase gain). The High level LED indicates a need to adjust the Level control on the Virtual Controller in a counter-clockwise direction (decrease gain). Both LEDs lighted indicates a good level. Level calibration requires the EAS Details channel audio to be interrupted by an AFSK tone

Notes on wiring Audio

Care should be taken when wiring balanced audio and unbalanced audio together. To wire an unbalanced output to a balanced input, the ground or shield wire from the output should be connected to both the negative input, and the Ground (if present) of the balanced input. To wire a balanced output to an unbalanced input, only connect the ground and positive terminals of the output. This may result in some attenuation of audio, but prevents shorting an active output to ground. If a balanced output is known to be transformer coupled, the positive and negative terminals can be used as "Hot" and "Ground" indiscriminately.

Never confuse balanced and unbalanced audio with Left and Right audio. If a Left-unbalanced output is tied to the positive terminal of a balanced input, and the Right-unbalanced output is tied to the negative balanced input, the balanced input will normally "see" 0 volts across the poles, resulting in serious distortion. The most common method of combining Left and Right audio into a single channel is to simply connect the Left and Right "hot" wires together.

For AFSK wiring In cases in which a monaural audio source is used for the EAS Details channel, Only use the inputs and outputs provided for the Right (not left) channel. This will help prevent confusion when only half of the audio switching capability is used.

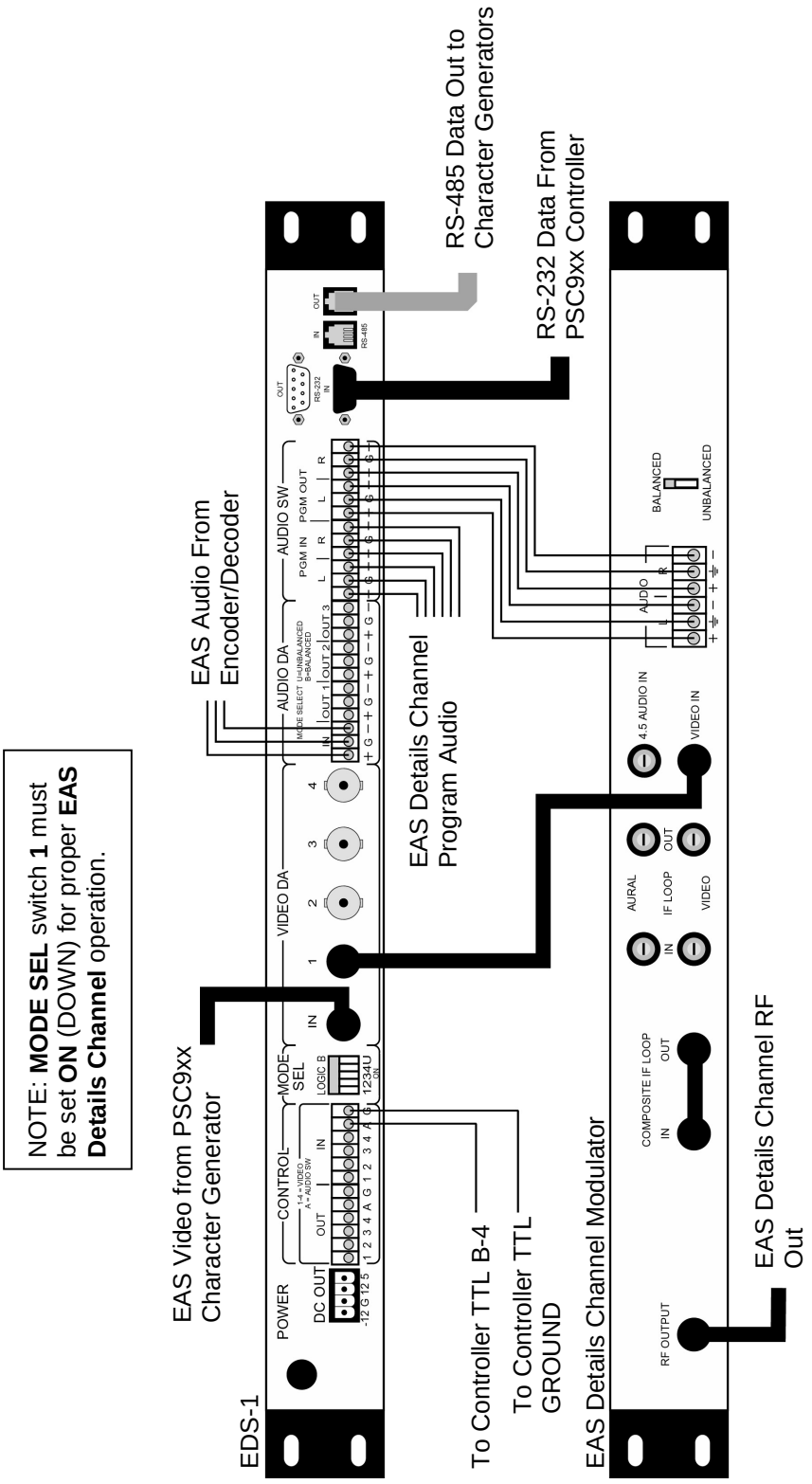


Figure 3 Typical EDS-1 / AFSK Transmitter Installation (Main Headend)

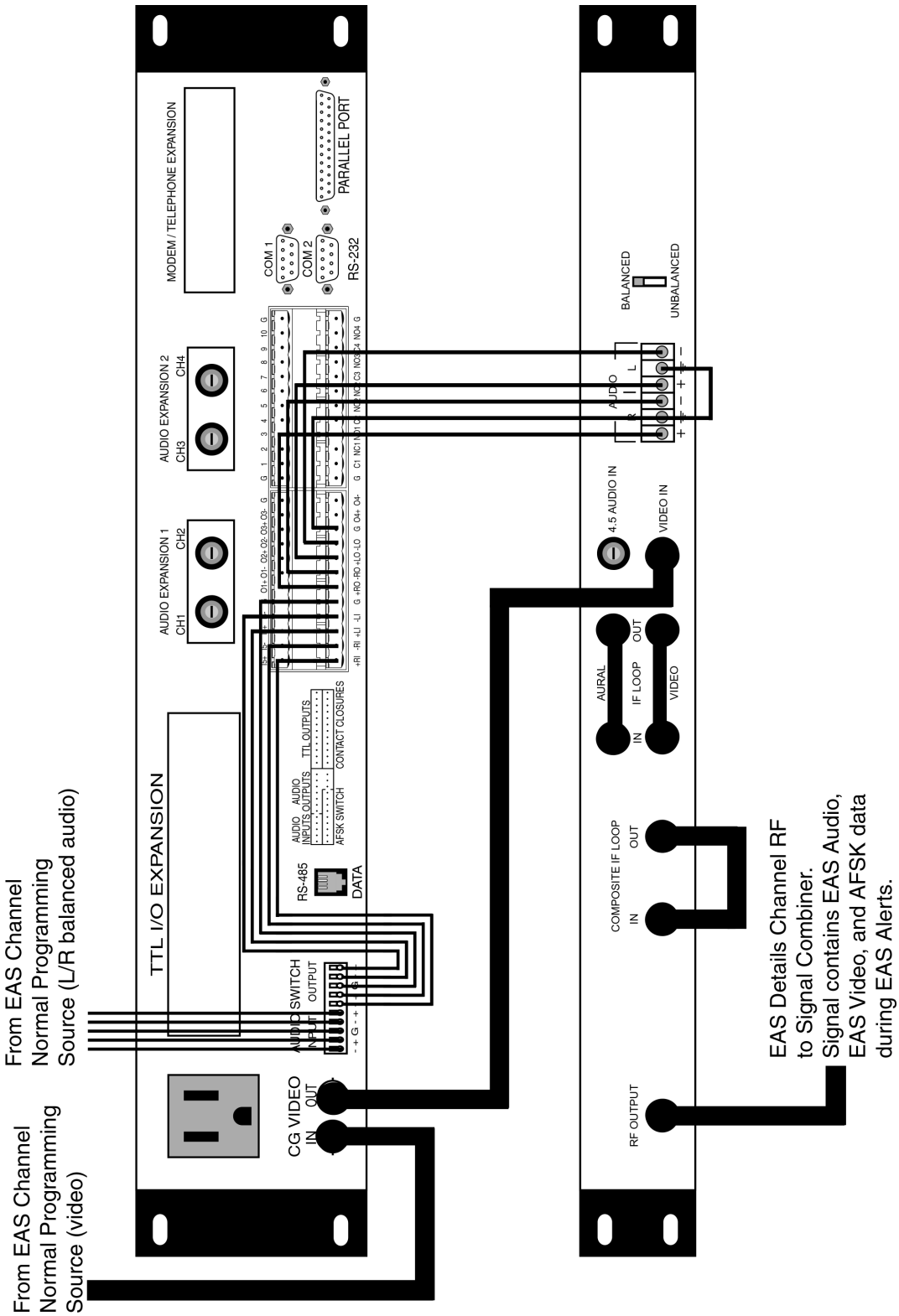


Figure 4 Typical EASyPLUS / AFSK Installation (Main Headend)

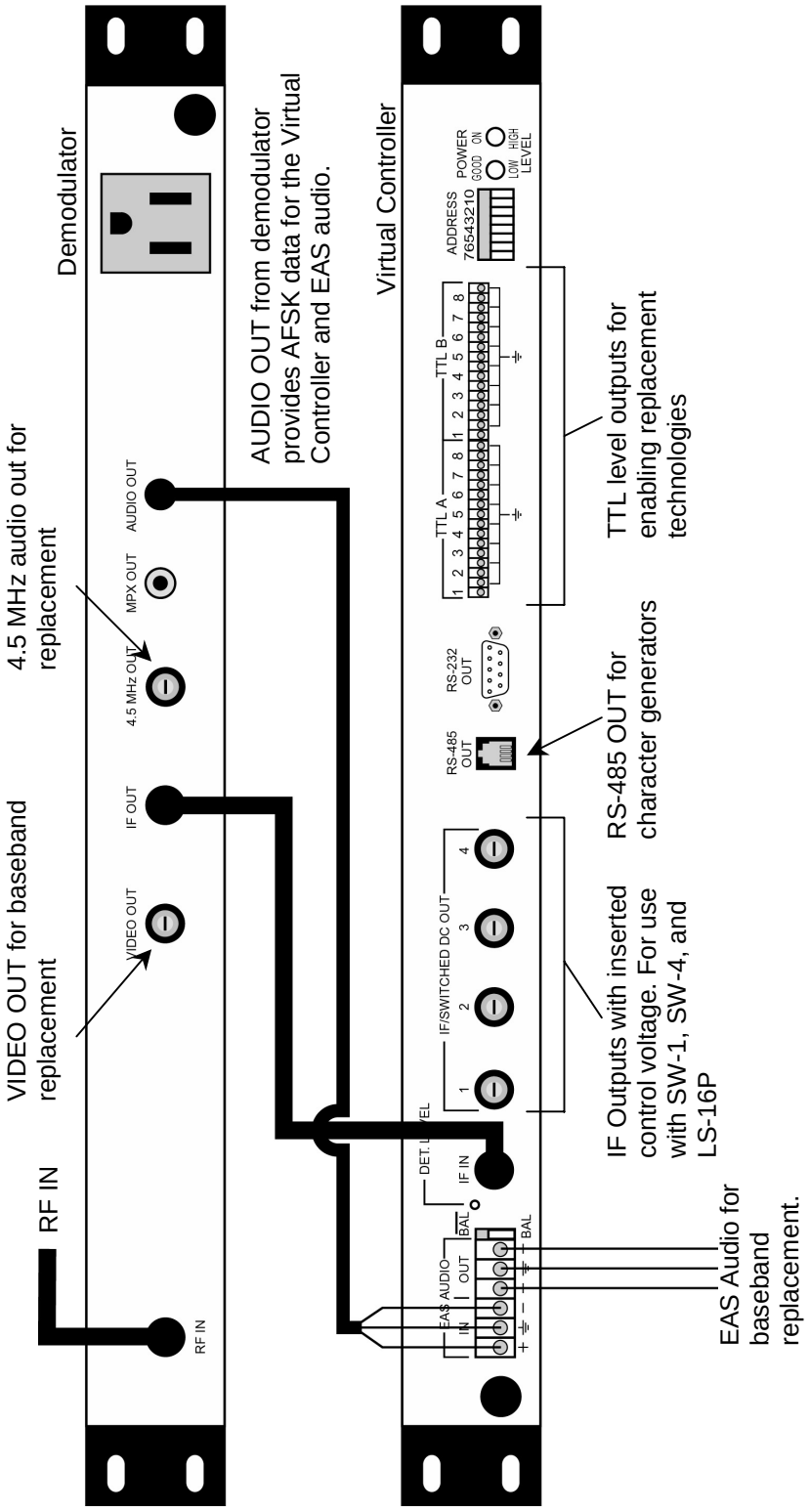


Figure 5 Typical Virtual Controller (Hub Site) Installation

Specifications

Power

Input Power Requirement:	90-264 VAC, 47-63 Hz, 15 Watts

Audio

Audio Input Type:	Monaural Balanced or Unbalanced (Selectable)
Audio Input DC Offset:	1 Volt Max
Audio Input Usable Level (AFSK):	0.5 - 12 Volts peak-peak
Audio Input Signal to Noise Ratio:	25 dB Min (distortion from AFSK Transmitter to Virtual Controller Input)
Audio Input Safe Level:	12V Peak Max, -12V Peak Min.
Audio Input Impedance:	10 K +/- 5% (resistive)
Audio Output Type:	Direct Loop (Audio Input to Audio Output)

Intermediate Frequency (IF)

IF Return Loss (40-60 MHz):	Greater than 20 dB
IF Insertion Loss (40-60 MHz):	Less than 1.5 dB
IF Output Flatness (40-60 MHz):	Less than 0.2 dB
IF Output DC Insertion:	10 V Min at 70 mA, Short Circuit Protected

Data Outputs

RS-232 Output:	RS-232C Compliant Levels
RS-485 Output:	RS-485/RS-422 Compliant, 1/8 RS-485 Load
Maximum RS-485 Fan out:	254 Trilithic RS-485 (1/8 load) devices

TTL Outputs

TTL Output Low Voltage:	0.2 Volt Max at 1.2mA
TTL Output High Voltage:	4 Volt Min at 1.2mA
Maximum TTL Sourcing Current:	4.25 mA
Maximum TTL Sinking Current:	10mA

Switches

Balanced/Unbalanced Switch:	Selects audio source connected to Audio Input
Address Switch (8 switch bank):	Selects Address and Operation Mode: (Up = 1, Down = 0) Address 0 selects Calibration mode Address 255 selects AFSK to RS-485 repeater mode All other positions select a binary address and place the device in Controller Mode.

Indicators

Power Good/Level Low LED:	In **Calibration** mode, indicates Audio Input level adjustment is **low**. In Controller or Repeater mode, indicates Internal Power is within operational limits.
Power On/Level High LED:	In **Calibration** mode, indicates Audio Input level adjustment is **high**. In Controller or Repeater mode, indicates External Power is available.

Troubleshooting

Note: References to PSC-9xx or EDS-1 only apply to PSC-9xx systems. References to EASyPLUS only apply to EASyPLUS systems.

Unable to send the Calibration signal from the PSC-9xx or EASyPLUS:

Make sure RS-485 and Virtual Controller (AFSK) is enabled in setup.

Unable to set up modulator deviation:

Monitor your EAS Channel and activate AFSK calibration. Does the normal audio for the EAS Channel go away?

If So, Make sure AFSK level adjustments are at mid-range before trying again. If possible, check the audio input to the modulator for a 9600 Hz tone.

If Not, Make sure the four jumpers inside the EDS-1, near the Program Audio connectors are removed. Make sure the AFSK option is installed in the EDS-1. Make sure the EAS Channel Modulators audio input is routed through the EDS-1 Program Audio connector, or the EASyPLUS AFSK relays. Make sure the PSC-9xx controller COM2 port is connected to the RS-232 IN on the EDS-1. Make sure power is connected to the EDS-1. If using an EDS-1, be sure to use the RS-232 cable supplied by Trilithic.

Unable to set the detection level of the Virtual Controller:

Both LED indicators remain on at all times:

Make sure all the address DIP switches are in the DOWN position. Adjust the level control completely counter-clockwise (at least 10 complete turns). Unplug the audio input connector from the Virtual Controller. If Both LEDs remain lighted, the Virtual Controller needs repaired.

Only the Low indicator lights:

Make sure the demodulator is powered on and tuned to the EAS Details channel. Make sure the demodulators “Hot” output(s) are not tied to the Virtual Controller ground.

Remove all audio wires but those from the demodulator. If you are then able to set the levels, a short, or crossed ground exists in the audio path.

Both LEDs Light, but are not constant:

Make sure the Demodulator is tuned to the EAS Channel. Make sure the AFSK Carrier (calibration) signal is being sent from the Headend. Check the audio signal level for proper levels (greater than .5 Volts pk-pk). Make sure the deviation of the calibration signal is correct at the Headend.

All Cases:

Verify the presence of a “clean” 9600 Hz tone at the audio input to the Virtual Controller. The signal path is EASyPLUS or PSC-9xx/EDS-1 → EAS Details Channel modulator → RF Signal Combiner → RF or Fiber Signal Transport → Hub site RF Distribution → EAS Channel demodulator → Virtual Controller.

Virtual Controller LEDs don’t flash during “FSK Test” or “Flash Hub Lights” test:

Make sure the Virtual Controller address is set between 1 and 250 (see Appendix C for address chart). Check for causes of signal distortion in the EAS Channel audio. Double check the Detection level on the Virtual Controller, specifically, look for signs of intermittency during the calibration.

Virtual Controller passes all AFSK tests, but EAS Weekly test doesn't activate the Hub Site:

Verify the test is being displayed at the Headend. Verify the system setup configuration is set to activate Virtual Controllers for a Required Weekly Test. The DOS, Windows NT, and EASyPLUS systems each have different setup capability for AFSK. DOS requires both RS-485 and Virtual Controller AFSK be enabled. Windows NT and EASyPLUS require Hub Site activation be enabled globally, and for any given EAS event. If county routing is enabled, Windows NT and EASyPLUS allow tests to activate specific Virtual Controllers based on the EAS message county codes.

Check the TTL, RS-485, and IF lines from the Virtual Controller. Be sure you can trace an activation path from the Virtual Controller, to each channel modulator. Make sure each piece of equipment in the activation path has a good power source.

Perform the "Flash Hub Lights" test again to insure nothing has gone wrong in the signal path to the Virtual Controller.

Perform an IF Alignment or Character Generator test from the Headend. If this works, the problem is most likely a software setup error.

Hub site channels switch during Weekly Test, but don't show EAS Audio/Video.

Verify the Audio, Video, and/or IF path from the Virtual Controller to the replacement mechanism at the modulator. Make sure Character Generators without internal power sources have +/- 12 Volts (if black screen during EAS, -12 Volts may be missing). Make sure composite IF is routed to and from the Virtual Controller if needed. Check the IF signal levels. Use a demod with IF loop to check Composite IF from the EAS Channel demodulator. Use a monitor to check the baseband Audio and Video.

Some channels activate during Weekly Test, others do not:

Find out if the channels that do not activate are using a different method of replacement. If Character Generators don't work, check the RS-485 line and Power. If IF switches don't work, check the Coaxial feed from the Virtual Controller to the switches. If an LS-16P is in use, unplug it and plug it back in to reset the short-circuit protection. Make sure any TTL signals being used agree with those used at the Headend. Check your TTL, IF, and RS-485 activation paths.

Use the Installation Checkoff (appendix D) as a troubleshooting checklist.

Contact your sales representative, or see the contact information in the back of this manual for additional help.

Appendix A – EAS IF Replacement

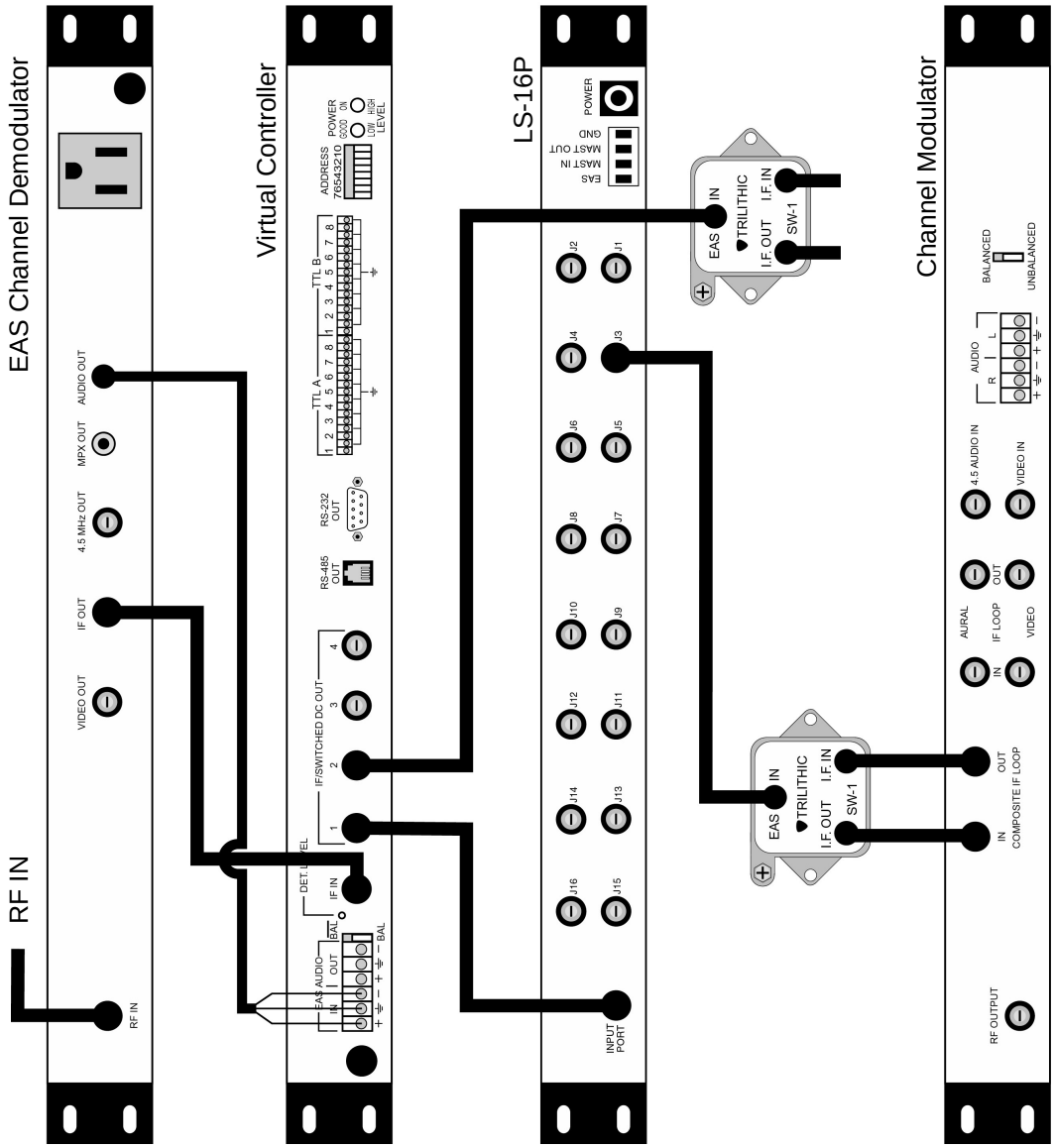


Figure 6 EAS IF Replacement

This configuration uses IF replacement technology for the EAS message. Additional (more than 4) IF replacement channels are supported by the utilization of LS-16P Lossless Splitters. SW-1s may be controlled directly from the Virtual Controller IF outputs. Baseband audio and video is supplied by the EAS channel demodulator, and is available for character generators and baseband switching equipment. An RS-485 data port controls SCG-1, SCG-2, Messenger-II, and Mini-Messenger character generators.

NOTE: The TTL control lines for the **LS-16P** are not used for composite IF replacement. The **Virtual Controller IF** outputs provide a DC current to activate the LS-16.

Appendix B – EAS Baseband Replacement

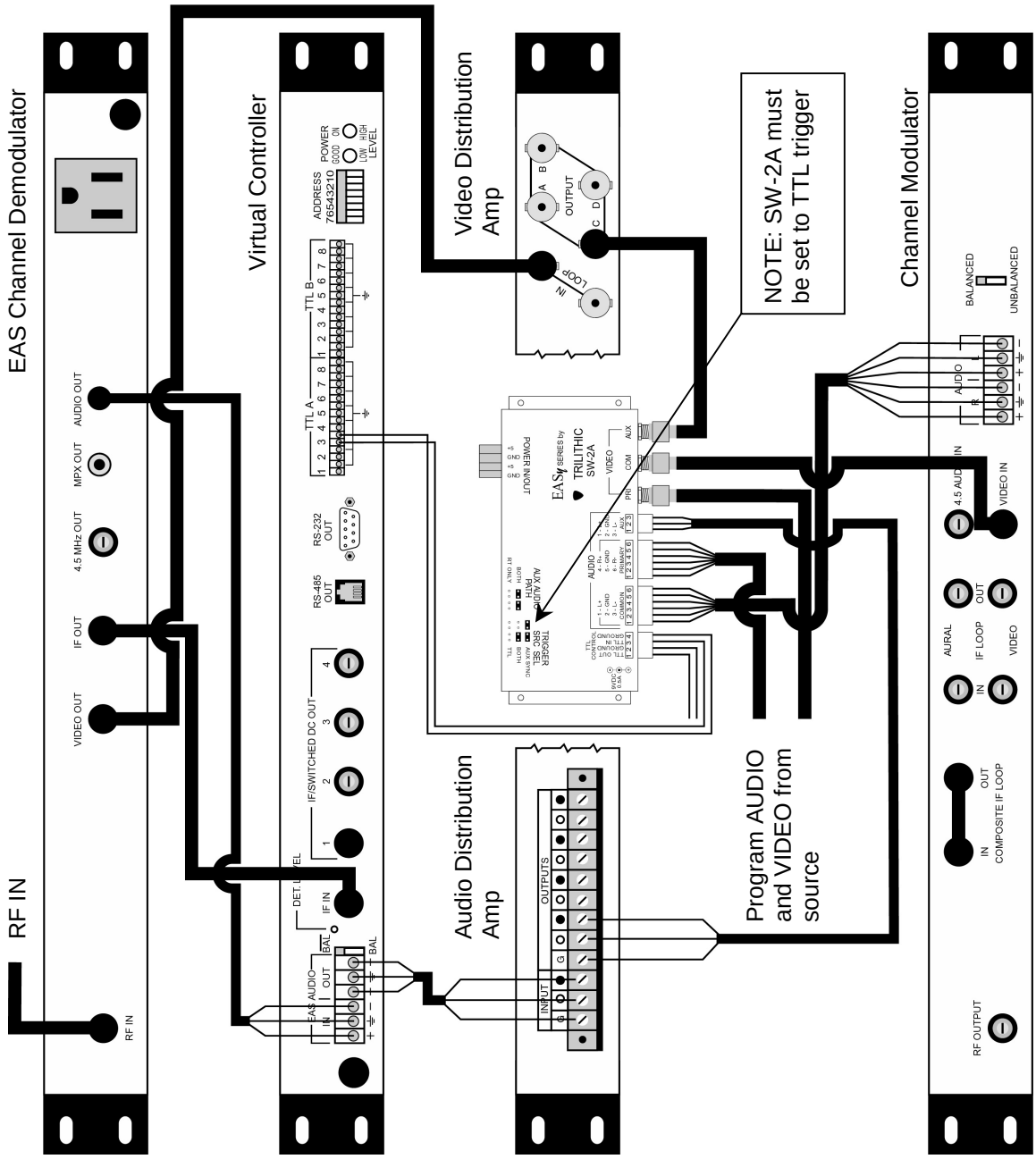


Figure 7 EAS Baseband Replacement

This configuration uses baseband replacement technology for the EAS message. Baseband audio and video is supplied by the EAS channel demodulator. Additional baseband replacement channels are supported by the utilization of audio and video distribution amplifiers. An RS-485 data port controls SCG-1, SCG-2, Messenger-II, and Mini-Messenger character generators.

Appendix C – DIP switch address list

DIP Switch Settings for Virtual Controller Addresses (* denotes special addresses)

7	6	5	4	3	2	1	0	Addr

Numbers shown appear on Virtual Controller rear panel, Not on the DIP switch itself.

DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	***CAL 0**
DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	UP	**1**
DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	UP	DOWN	**2**
DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	UP	UP	**3**
DOWN	DOWN	DOWN	DOWN	DOWN	UP	DOWN	DOWN	**4**
DOWN	DOWN	DOWN	DOWN	DOWN	UP	DOWN	UP	**5**
DOWN	DOWN	DOWN	DOWN	DOWN	UP	UP	DOWN	**6**
DOWN	DOWN	DOWN	DOWN	DOWN	UP	UP	UP	**7**
DOWN	DOWN	DOWN	DOWN	UP	DOWN	DOWN	DOWN	**8**
DOWN	DOWN	DOWN	DOWN	UP	DOWN	DOWN	UP	**9**
DOWN	DOWN	DOWN	DOWN	UP	DOWN	UP	DOWN	**10**
DOWN	DOWN	DOWN	DOWN	UP	DOWN	UP	UP	**11**
DOWN	DOWN	DOWN	DOWN	UP	UP	DOWN	DOWN	**12**
DOWN	DOWN	DOWN	DOWN	UP	UP	DOWN	UP	**13**
DOWN	DOWN	DOWN	DOWN	UP	UP	UP	DOWN	**14**
DOWN	DOWN	DOWN	DOWN	UP	UP	UP	UP	**15**
DOWN	DOWN	DOWN	UP	DOWN	DOWN	DOWN	DOWN	**16**
DOWN	DOWN	DOWN	UP	DOWN	DOWN	DOWN	UP	**17**
DOWN	DOWN	DOWN	UP	DOWN	DOWN	UP	DOWN	**18**
DOWN	DOWN	DOWN	UP	DOWN	DOWN	UP	UP	**19**
DOWN	DOWN	DOWN	UP	DOWN	UP	DOWN	DOWN	**20**
DOWN	DOWN	DOWN	UP	DOWN	UP	DOWN	UP	**21**
DOWN	DOWN	DOWN	UP	DOWN	UP	UP	DOWN	**22**
DOWN	DOWN	DOWN	UP	DOWN	UP	UP	UP	**23**
DOWN	DOWN	DOWN	UP	UP	DOWN	DOWN	DOWN	**24**
DOWN	DOWN	DOWN	UP	UP	DOWN	DOWN	UP	**25**
DOWN	DOWN	DOWN	UP	UP	DOWN	UP	DOWN	**26**
DOWN	DOWN	DOWN	UP	UP	DOWN	UP	UP	**27**
DOWN	DOWN	DOWN	UP	UP	UP	DOWN	DOWN	**28**
DOWN	DOWN	DOWN	UP	UP	UP	DOWN	UP	**29**
DOWN	DOWN	DOWN	UP	UP	UP	UP	DOWN	**30**
DOWN	DOWN	DOWN	UP	UP	UP	UP	UP	**31**

*** CAL (address 0) is used during level setup of the virtual controller**

APPENDIX C continued…

DIP Switch Settings for Virtual Controller Addresses

7	6	5	4	3	2	1	0	Addr
Numbers shown appear on Virtual Controller rear panel, Not on the DIP switch itself.								
DOWN	DOWN	UP	DOWN	DOWN	DOWN	DOWN	DOWN	**32**
DOWN	DOWN	UP	DOWN	DOWN	DOWN	DOWN	UP	**33**
DOWN	DOWN	UP	DOWN	DOWN	DOWN	UP	DOWN	**34**
DOWN	DOWN	UP	DOWN	DOWN	DOWN	UP	UP	**35**
DOWN	DOWN	UP	DOWN	DOWN	UP	DOWN	DOWN	**36**
DOWN	DOWN	UP	DOWN	DOWN	UP	DOWN	UP	**37**
DOWN	DOWN	UP	DOWN	DOWN	UP	UP	DOWN	**38**
DOWN	DOWN	UP	DOWN	DOWN	UP	UP	UP	**39**
DOWN	DOWN	UP	DOWN	UP	DOWN	DOWN	DOWN	**40**
DOWN	DOWN	UP	DOWN	UP	DOWN	DOWN	UP	**41**
DOWN	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	**42**
DOWN	DOWN	UP	DOWN	UP	DOWN	UP	UP	**43**
DOWN	DOWN	UP	DOWN	UP	UP	DOWN	DOWN	**44**
DOWN	DOWN	UP	DOWN	UP	UP	DOWN	UP	**45**
DOWN	DOWN	UP	DOWN	UP	UP	UP	DOWN	**46**
DOWN	DOWN	UP	DOWN	UP	UP	UP	UP	**47**
DOWN	DOWN	UP	UP	DOWN	DOWN	DOWN	DOWN	**48**
DOWN	DOWN	UP	UP	DOWN	DOWN	DOWN	UP	**49**
DOWN	DOWN	UP	UP	DOWN	DOWN	UP	DOWN	**50**
DOWN	DOWN	UP	UP	DOWN	DOWN	UP	UP	**51**
DOWN	DOWN	UP	UP	DOWN	UP	DOWN	DOWN	**52**
DOWN	DOWN	UP	UP	DOWN	UP	DOWN	UP	**53**
DOWN	DOWN	UP	UP	DOWN	UP	UP	DOWN	**54**
DOWN	DOWN	UP	UP	DOWN	UP	UP	UP	**55**
DOWN	DOWN	UP	UP	UP	DOWN	DOWN	DOWN	**56**
DOWN	DOWN	UP	UP	UP	DOWN	DOWN	UP	**57**
DOWN	DOWN	UP	UP	UP	DOWN	UP	DOWN	**58**
DOWN	DOWN	UP	UP	UP	DOWN	UP	UP	**59**
DOWN	DOWN	UP	UP	UP	UP	DOWN	DOWN	**60**
DOWN	DOWN	UP	UP	UP	UP	DOWN	UP	**61**
DOWN	DOWN	UP	UP	UP	UP	UP	DOWN	**62**
DOWN	DOWN	UP	UP	UP	UP	UP	UP	**63**

APPENDIX C continued…

DIP Switch Settings for Virtual Controller Addresses

7	6	5	4	3	2	1	0	Addr
Numbers shown appear on Virtual Controller rear panel, Not on the DIP switch itself.								
DOWN	UP	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	**64**
DOWN	UP	DOWN	DOWN	DOWN	DOWN	DOWN	UP	**65**
DOWN	UP	DOWN	DOWN	DOWN	DOWN	UP	DOWN	**66**
DOWN	UP	DOWN	DOWN	DOWN	DOWN	UP	UP	**67**
DOWN	UP	DOWN	DOWN	DOWN	UP	DOWN	DOWN	**68**
DOWN	UP	DOWN	DOWN	DOWN	UP	DOWN	UP	**69**
DOWN	UP	DOWN	DOWN	DOWN	UP	UP	DOWN	**70**
DOWN	UP	DOWN	DOWN	DOWN	UP	UP	UP	**71**
DOWN	UP	DOWN	DOWN	UP	DOWN	DOWN	DOWN	**72**
DOWN	UP	DOWN	DOWN	UP	DOWN	DOWN	UP	**73**
DOWN	UP	DOWN	DOWN	UP	DOWN	UP	DOWN	**74**
DOWN	UP	DOWN	DOWN	UP	DOWN	UP	UP	**75**
DOWN	UP	DOWN	DOWN	UP	UP	DOWN	DOWN	**76**
DOWN	UP	DOWN	DOWN	UP	UP	DOWN	UP	**77**
DOWN	UP	DOWN	DOWN	UP	UP	UP	DOWN	**78**
DOWN	UP	DOWN	DOWN	UP	UP	UP	UP	**79**
DOWN	UP	DOWN	UP	DOWN	DOWN	DOWN	DOWN	**80**
DOWN	UP	DOWN	UP	DOWN	DOWN	DOWN	UP	**81**
DOWN	UP	DOWN	UP	DOWN	DOWN	UP	DOWN	**82**
DOWN	UP	DOWN	UP	DOWN	DOWN	UP	UP	**83**
DOWN	UP	DOWN	UP	DOWN	UP	DOWN	DOWN	**84**
DOWN	UP	DOWN	UP	DOWN	UP	DOWN	UP	**85**
DOWN	UP	DOWN	UP	DOWN	UP	UP	DOWN	**86**
DOWN	UP	DOWN	UP	DOWN	UP	UP	UP	**87**
DOWN	UP	DOWN	UP	UP	DOWN	DOWN	DOWN	**88**
DOWN	UP	DOWN	UP	UP	DOWN	DOWN	UP	**89**
DOWN	UP	DOWN	UP	UP	DOWN	UP	DOWN	**90**
DOWN	UP	DOWN	UP	UP	DOWN	UP	UP	**91**
DOWN	UP	DOWN	UP	UP	UP	DOWN	DOWN	**92**
DOWN	UP	DOWN	UP	UP	UP	DOWN	UP	**93**
DOWN	UP	DOWN	UP	UP	UP	UP	DOWN	**94**
DOWN	UP	DOWN	UP	UP	UP	UP	UP	**95**

APPENDIX C continued…

DIP Switch Settings for Virtual Controller Addresses

7	6	5	4	3	2	1	0	Addr
Numbers shown appear on Virtual Controller rear panel, Not on the DIP switch itself.								
DOWN	UP	UP	DOWN	DOWN	DOWN	DOWN	DOWN	**96**
DOWN	UP	UP	DOWN	DOWN	DOWN	DOWN	UP	**97**
DOWN	UP	UP	DOWN	DOWN	DOWN	UP	DOWN	**98**
DOWN	UP	UP	DOWN	DOWN	DOWN	UP	UP	**99**
DOWN	UP	UP	DOWN	DOWN	UP	DOWN	DOWN	**100**
DOWN	UP	UP	DOWN	DOWN	UP	DOWN	UP	**101**
DOWN	UP	UP	DOWN	DOWN	UP	UP	DOWN	**102**
DOWN	UP	UP	DOWN	DOWN	UP	UP	UP	**103**
DOWN	UP	UP	DOWN	UP	DOWN	DOWN	DOWN	**104**
DOWN	UP	UP	DOWN	UP	DOWN	DOWN	UP	**105**
DOWN	UP	UP	DOWN	UP	DOWN	UP	DOWN	**106**
DOWN	UP	UP	DOWN	UP	DOWN	UP	UP	**107**
DOWN	UP	UP	DOWN	UP	UP	DOWN	DOWN	**108**
DOWN	UP	UP	DOWN	UP	UP	DOWN	UP	**109**
DOWN	UP	UP	DOWN	UP	UP	UP	DOWN	**110**
DOWN	UP	UP	DOWN	UP	UP	UP	UP	**111**
DOWN	UP	UP	UP	DOWN	DOWN	DOWN	DOWN	**112**
DOWN	UP	UP	UP	DOWN	DOWN	DOWN	UP	**113**
DOWN	UP	UP	UP	DOWN	DOWN	UP	DOWN	**114**
DOWN	UP	UP	UP	DOWN	DOWN	UP	UP	**115**
DOWN	UP	UP	UP	DOWN	UP	DOWN	DOWN	**116**
DOWN	UP	UP	UP	DOWN	UP	DOWN	UP	**117**
DOWN	UP	UP	UP	DOWN	UP	UP	DOWN	**118**
DOWN	UP	UP	UP	DOWN	UP	UP	UP	**119**
DOWN	UP	UP	UP	UP	DOWN	DOWN	DOWN	**120**
DOWN	UP	UP	UP	UP	DOWN	DOWN	UP	**121**
DOWN	UP	UP	UP	UP	DOWN	UP	DOWN	**122**
DOWN	UP	UP	UP	UP	DOWN	UP	UP	**123**
DOWN	UP	UP	UP	UP	UP	DOWN	DOWN	**124**
DOWN	UP	UP	UP	UP	UP	DOWN	UP	**125**
DOWN	UP	UP	UP	UP	UP	UP	DOWN	**126**
DOWN	UP	UP	UP	UP	UP	UP	UP	**127**

APPENDIX C continued…

DIP Switch Settings for Virtual Controller Addresses

7	6	5	4	3	2	1	0	Addr
Numbers shown appear on Virtual Controller rear panel, Not on the DIP switch itself.								
UP	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	**128**
UP	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	UP	**129**
UP	DOWN	DOWN	DOWN	DOWN	DOWN	UP	DOWN	**130**
UP	DOWN	DOWN	DOWN	DOWN	DOWN	UP	UP	**131**
UP	DOWN	DOWN	DOWN	DOWN	UP	DOWN	DOWN	**132**
UP	DOWN	DOWN	DOWN	DOWN	UP	DOWN	UP	**133**
UP	DOWN	DOWN	DOWN	DOWN	UP	UP	DOWN	**134**
UP	DOWN	DOWN	DOWN	DOWN	UP	UP	UP	**135**
UP	DOWN	DOWN	DOWN	UP	DOWN	DOWN	DOWN	**136**
UP	DOWN	DOWN	DOWN	UP	DOWN	DOWN	UP	**137**
UP	DOWN	DOWN	DOWN	UP	DOWN	UP	DOWN	**138**
UP	DOWN	DOWN	DOWN	UP	DOWN	UP	UP	**139**
UP	DOWN	DOWN	DOWN	UP	UP	DOWN	DOWN	**140**
UP	DOWN	DOWN	DOWN	UP	UP	DOWN	UP	**141**
UP	DOWN	DOWN	DOWN	UP	UP	UP	DOWN	**142**
UP	DOWN	DOWN	DOWN	UP	UP	UP	UP	**143**
UP	DOWN	DOWN	UP	DOWN	DOWN	DOWN	DOWN	**144**
UP	DOWN	DOWN	UP	DOWN	DOWN	DOWN	UP	**145**
UP	DOWN	DOWN	UP	DOWN	DOWN	UP	DOWN	**146**
UP	DOWN	DOWN	UP	DOWN	DOWN	UP	UP	**147**
UP	DOWN	DOWN	UP	DOWN	UP	DOWN	DOWN	**148**
UP	DOWN	DOWN	UP	DOWN	UP	DOWN	UP	**149**
UP	DOWN	DOWN	UP	DOWN	UP	UP	DOWN	**150**
UP	DOWN	DOWN	UP	DOWN	UP	UP	UP	**151**
UP	DOWN	DOWN	UP	UP	DOWN	DOWN	DOWN	**152**
UP	DOWN	DOWN	UP	UP	DOWN	DOWN	UP	**153**
UP	DOWN	DOWN	UP	UP	DOWN	UP	DOWN	**154**
UP	DOWN	DOWN	UP	UP	DOWN	UP	UP	**155**
UP	DOWN	DOWN	UP	UP	UP	DOWN	DOWN	**156**
UP	DOWN	DOWN	UP	UP	UP	DOWN	UP	**157**
UP	DOWN	DOWN	UP	UP	UP	UP	DOWN	**158**
UP	DOWN	DOWN	UP	UP	UP	UP	UP	**159**

APPENDIX C continued…

DIP Switch Settings for Virtual Controller Addresses

7	6	5	4	3	2	1	0	Addr
Numbers shown appear on Virtual Controller rear panel, Not on the DIP switch itself.								
UP	DOWN	UP	DOWN	DOWN	DOWN	DOWN	DOWN	**160**
UP	DOWN	UP	DOWN	DOWN	DOWN	DOWN	UP	**161**
UP	DOWN	UP	DOWN	DOWN	DOWN	UP	DOWN	**162**
UP	DOWN	UP	DOWN	DOWN	DOWN	UP	UP	**163**
UP	DOWN	UP	DOWN	DOWN	UP	DOWN	DOWN	**164**
UP	DOWN	UP	DOWN	DOWN	UP	DOWN	UP	**165**
UP	DOWN	UP	DOWN	DOWN	UP	UP	DOWN	**166**
UP	DOWN	UP	DOWN	DOWN	UP	UP	UP	**167**
UP	DOWN	UP	DOWN	UP	DOWN	DOWN	DOWN	**168**
UP	DOWN	UP	DOWN	UP	DOWN	DOWN	UP	**169**
UP	DOWN	UP	DOWN	UP	DOWN	UP	DOWN	**170**
UP	DOWN	UP	DOWN	UP	DOWN	UP	UP	**171**
UP	DOWN	UP	DOWN	UP	UP	DOWN	DOWN	**172**
UP	DOWN	UP	DOWN	UP	UP	DOWN	UP	**173**
UP	DOWN	UP	DOWN	UP	UP	UP	DOWN	**174**
UP	DOWN	UP	DOWN	UP	UP	UP	UP	**175**
UP	DOWN	UP	UP	DOWN	DOWN	DOWN	DOWN	**176**
UP	DOWN	UP	UP	DOWN	DOWN	DOWN	UP	**177**
UP	DOWN	UP	UP	DOWN	DOWN	UP	DOWN	**178**
UP	DOWN	UP	UP	DOWN	DOWN	UP	UP	**179**
UP	DOWN	UP	UP	DOWN	UP	DOWN	DOWN	**180**
UP	DOWN	UP	UP	DOWN	UP	DOWN	UP	**181**
UP	DOWN	UP	UP	DOWN	UP	UP	DOWN	**182**
UP	DOWN	UP	UP	DOWN	UP	UP	UP	**183**
UP	DOWN	UP	UP	UP	DOWN	DOWN	DOWN	**184**
UP	DOWN	UP	UP	UP	DOWN	DOWN	UP	**185**
UP	DOWN	UP	UP	UP	DOWN	UP	DOWN	**186**
UP	DOWN	UP	UP	UP	DOWN	UP	UP	**187**
UP	DOWN	UP	UP	UP	UP	DOWN	DOWN	**188**
UP	DOWN	UP	UP	UP	UP	DOWN	UP	**189**
UP	DOWN	UP	UP	UP	UP	UP	DOWN	**190**
UP	DOWN	UP	UP	UP	UP	UP	UP	**191**

APPENDIX C continued…

DIP Switch Settings for Virtual Controller Addresses

7	6	5	4	3	2	1	0	Addr
Numbers shown appear on Virtual Controller rear panel, Not on the DIP switch itself.								
UP	UP	DOWN	DOWN	DOWN	DOWN	DOWN	DOWN	**192**
UP	UP	DOWN	DOWN	DOWN	DOWN	DOWN	UP	**193**
UP	UP	DOWN	DOWN	DOWN	DOWN	UP	DOWN	**194**
UP	UP	DOWN	DOWN	DOWN	DOWN	UP	UP	**195**
UP	UP	DOWN	DOWN	DOWN	UP	DOWN	DOWN	**196**
UP	UP	DOWN	DOWN	DOWN	UP	DOWN	UP	**197**
UP	UP	DOWN	DOWN	DOWN	UP	UP	DOWN	**198**
UP	UP	DOWN	DOWN	DOWN	UP	UP	UP	**199**
UP	UP	DOWN	DOWN	UP	DOWN	DOWN	DOWN	**200**
UP	UP	DOWN	DOWN	UP	DOWN	DOWN	UP	**201**
UP	UP	DOWN	DOWN	UP	DOWN	UP	DOWN	**202**
UP	UP	DOWN	DOWN	UP	DOWN	UP	UP	**203**
UP	UP	DOWN	DOWN	UP	UP	DOWN	DOWN	**204**
UP	UP	DOWN	DOWN	UP	UP	DOWN	UP	**205**
UP	UP	DOWN	DOWN	UP	UP	UP	DOWN	**206**
UP	UP	DOWN	DOWN	UP	UP	UP	UP	**207**
UP	UP	DOWN	UP	DOWN	DOWN	DOWN	DOWN	**208**
UP	UP	DOWN	UP	DOWN	DOWN	DOWN	UP	**209**
UP	UP	DOWN	UP	DOWN	DOWN	UP	DOWN	**210**
UP	UP	DOWN	UP	DOWN	DOWN	UP	UP	**211**
UP	UP	DOWN	UP	DOWN	UP	DOWN	DOWN	**212**
UP	UP	DOWN	UP	DOWN	UP	DOWN	UP	**213**
UP	UP	DOWN	UP	DOWN	UP	UP	DOWN	**214**
UP	UP	DOWN	UP	DOWN	UP	UP	UP	**215**
UP	UP	DOWN	UP	UP	DOWN	DOWN	DOWN	**216**
UP	UP	DOWN	UP	UP	DOWN	DOWN	UP	**217**
UP	UP	DOWN	UP	UP	DOWN	UP	DOWN	**218**
UP	UP	DOWN	UP	UP	DOWN	UP	UP	**219**
UP	UP	DOWN	UP	UP	UP	DOWN	DOWN	**220**
UP	UP	DOWN	UP	UP	UP	DOWN	UP	**221**
UP	UP	DOWN	UP	UP	UP	UP	DOWN	**222**
UP	UP	DOWN	UP	UP	UP	UP	UP	**223**

APPENDIX C continued…

DIP Switch Settings for Virtual Controller Addresses (* denotes special addresses)

7	6	5	4	3	2	1	0	Addr
Numbers shown appear on Virtual Controller rear panel, Not on the DIP switch itself.								
UP	UP	UP	DOWN	DOWN	DOWN	DOWN	DOWN	**224**
UP	UP	UP	DOWN	DOWN	DOWN	DOWN	UP	**225**
UP	UP	UP	DOWN	DOWN	DOWN	UP	DOWN	**226**
UP	UP	UP	DOWN	DOWN	DOWN	UP	UP	**227**
UP	UP	UP	DOWN	DOWN	UP	DOWN	DOWN	**228**
UP	UP	UP	DOWN	DOWN	UP	DOWN	UP	**229**
UP	UP	UP	DOWN	DOWN	UP	UP	DOWN	**230**
UP	UP	UP	DOWN	DOWN	UP	UP	UP	**231**
UP	UP	UP	DOWN	UP	DOWN	DOWN	DOWN	**232**
UP	UP	UP	DOWN	UP	DOWN	DOWN	UP	**233**
UP	UP	UP	DOWN	UP	DOWN	UP	DOWN	**234**
UP	UP	UP	DOWN	UP	DOWN	UP	UP	**235**
UP	UP	UP	DOWN	UP	UP	DOWN	DOWN	**236**
UP	UP	UP	DOWN	UP	UP	DOWN	UP	**237**
UP	UP	UP	DOWN	UP	UP	UP	DOWN	**238**
UP	UP	UP	DOWN	UP	UP	UP	UP	**239**
UP	UP	UP	UP	DOWN	DOWN	DOWN	DOWN	**240**
UP	UP	UP	UP	DOWN	DOWN	DOWN	UP	**241**
UP	UP	UP	UP	DOWN	DOWN	UP	DOWN	**242**
UP	UP	UP	UP	DOWN	DOWN	UP	UP	**243**
UP	UP	UP	UP	DOWN	UP	DOWN	DOWN	**244**
UP	UP	UP	UP	DOWN	UP	DOWN	UP	**245**
UP	UP	UP	UP	DOWN	UP	UP	DOWN	**246**
UP	UP	UP	UP	DOWN	UP	UP	UP	**247**
UP	UP	UP	UP	UP	DOWN	DOWN	DOWN	**248**
UP	UP	UP	UP	UP	DOWN	DOWN	UP	**249**
UP	UP	UP	UP	UP	DOWN	UP	DOWN	**250**
UP	UP	UP	UP	UP	DOWN	UP	UP	***HE 251**
UP	UP	UP	UP	UP	UP	DOWN	DOWN	***HE 252**
UP	UP	UP	UP	UP	UP	DOWN	UP	***HE 253**
UP	UP	UP	UP	UP	UP	UP	DOWN	***HE 254**
UP	UP	UP	UP	UP	UP	UP	UP	**DIAG**

***HE address 251 is used at the headend to control multiple trunks (Zones 1-16)**
***HE address 252 is used at the headend to control multiple trunks (Zones 17-32)**
***HE address 253 is used at the headend to control multiple EAS channels (1-16)**
***HE address 254 is used at the headend to control multiple EAS channels (17-32)**

Note: DIAG (address 255) is not used by consumers unless instructed by Trilithic Customer Support.

Appendix D – Installation Checklist

Headend

1) Virtual Controller support is turned **on** in the EASyPLUS or PSC-9xx configuration _____.
2) PSC-9xx* COM2 is connected to the EDS-1 RS-232 Input _____.
3) AFSK Board* is installed in the EDS-1* _____.
4) EAS Channel Audio is routed through the EDS-1* Program Audio _____.
5) EAS Channel Audio is routed through the EASyPLUS* AFSK Switch _____.
6) EAS Channel Deviation has been set up using AFSK Calibration signal _____.
7) EAS Channel (EAS Details Channel) is available at all HUB sites _____.
8) No Combs or other devices can break the EAS channel's path to Hubs _____.
9) No Combs or other devices can interfere with the EAS Channel frequency _____.

Hub Sites

1) EAS Details Channel demodulator tuned to the EAS Channel _____.
2) EAS Channel demodulator audio connected to Virtual Controller audio _____.
3) Virtual Controller Balanced/Unbalanced audio set according to demod output _____.
4) Virtual Controller level adjusted while AFSK Cal signal is transmitted at headend _____.
5) Virtual Controller Address set to 1 – 250 (see appendix C address chart) _____.
6) Virtual Controller passed "flash lights" test from Headend _____.
7) EAS Channel demodulator Composite IF connected to Virtual Controller IF In _____.
8) Virtual Controller Audio Out** connected to any EAS Baseband audio switches/amps _____.
9) Virtual Controller IF Out** connected to IF Switches or LS-16P _____.
10) Virtual Controller RS-485 Out** connected to Character Generator chain _____.
11) Virtual Controller TTLs** connected to baseband switches _____.
12) Virtual Controller TTLs** connected to SW-6 for Comb Generator activation _____.
13) EAS Channel Demod Video** connected to any EAS Baseband video switches/amps _____.
14) All modulators can have Audio/Video or IF signals traced back to the EAS Chan Demod, With the exception of Character Generator channels and Combs. _____.
15) All Character Generators can have audio traced back to the EAS Channel demod _____.
16) All Baseband switches (except CG) are connected to a Virtual Controller TTL line _____.
17) Comb Generator (if present) is connected to a TTL via an SW-6 _____.

Final

Weekly test performed from Headend Encoder/Decoder. Every Hub channel activated with the EAS Weekly Test. _____.

***** Dependent upon which controller (PSC-9xx or EASyPLUS) is used.
****** Dependent upon EAS messaging technology used at the Hub.

Appendix E – Address and Location records

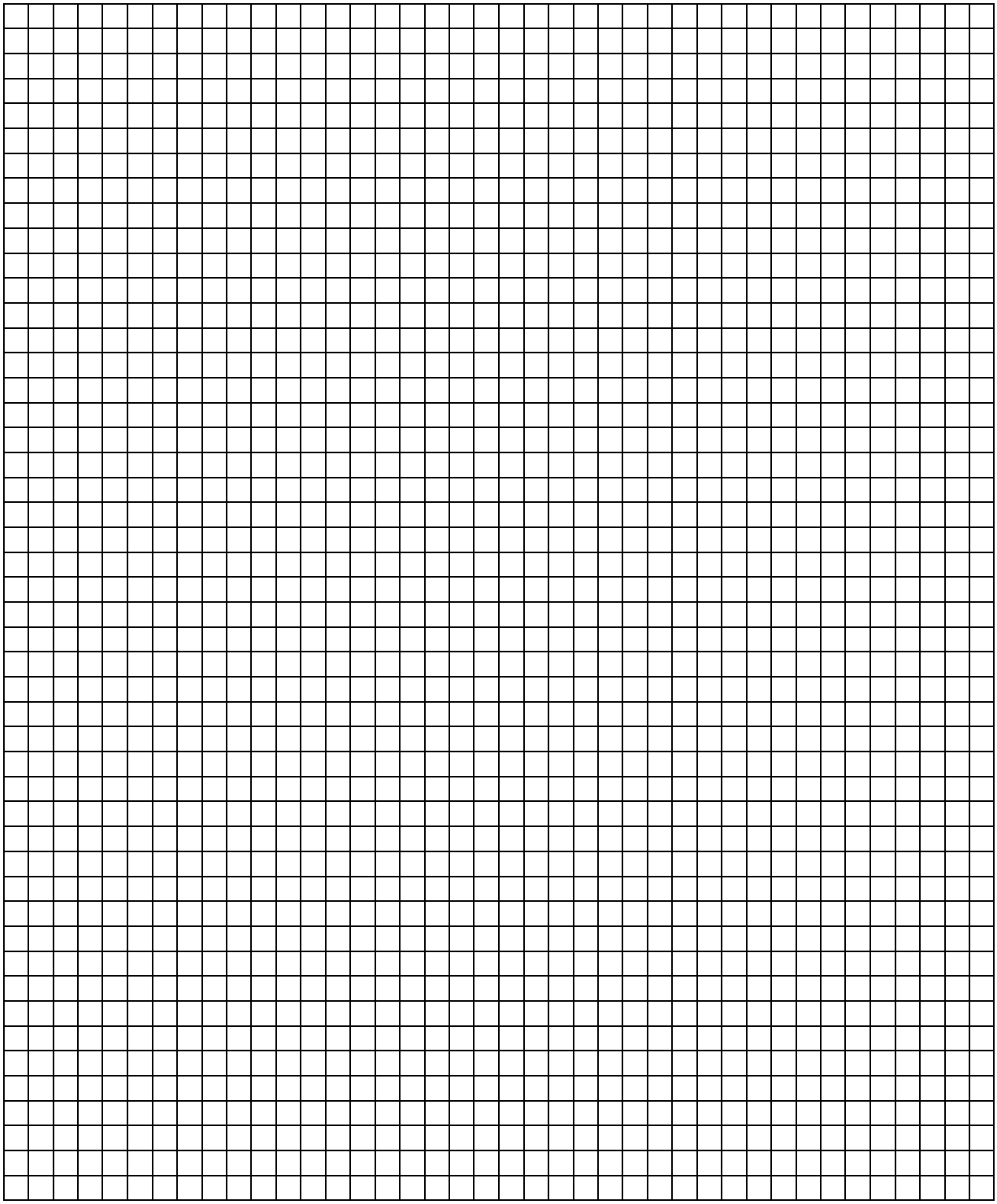
Virtual Controller Address	Hub name	Community Served	County Name

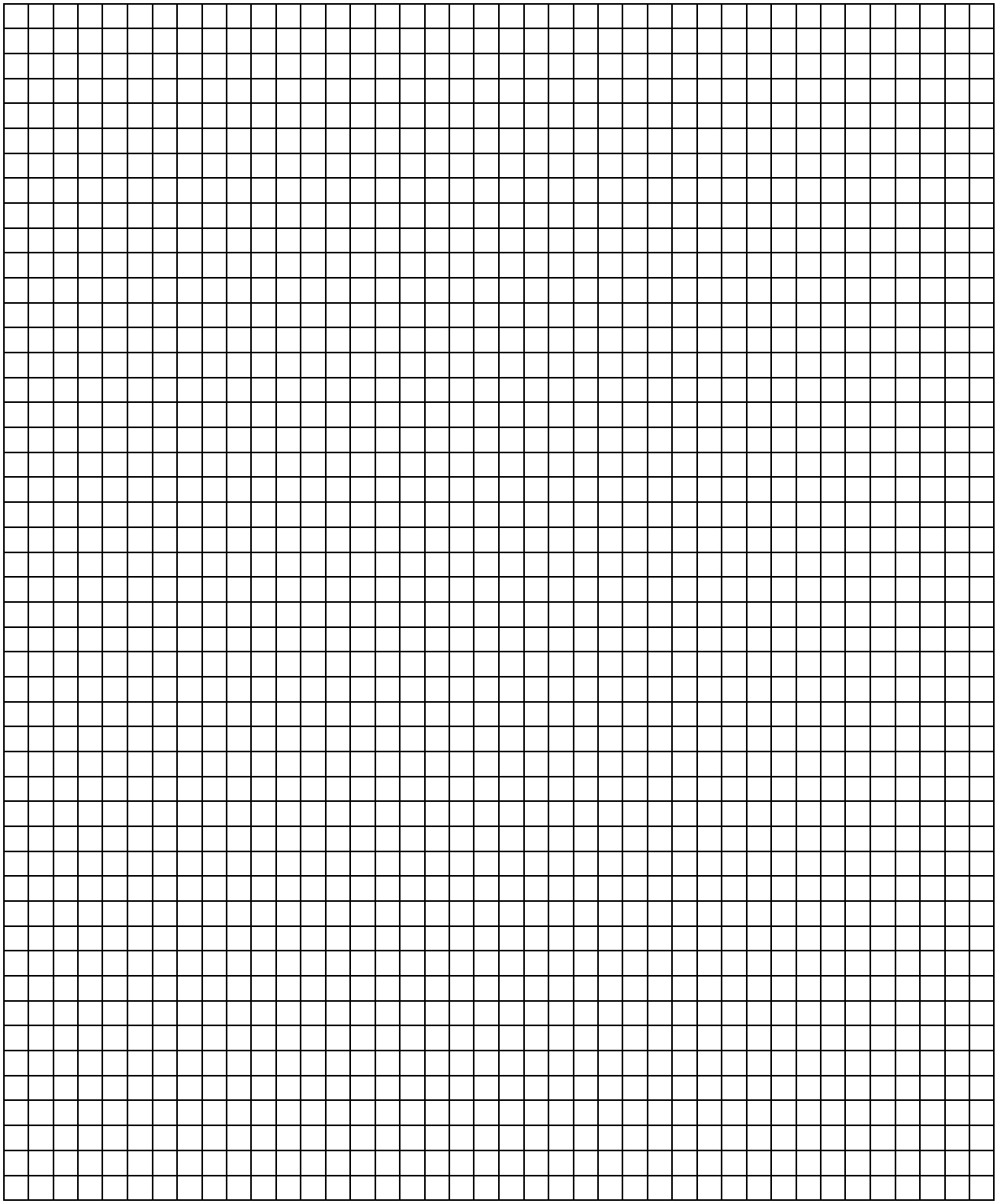
Virtual Controller Address	Hub name	Community Served	County Name

Virtual Controller Address	Hub name	Community Served	County Name

Appendix F – Notes

Appendix G – Drawings





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