

# EMERGENCY ALERT SYSTEMS

# EAS

## FOR IPTV HEAD-ENDS

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GAYLORD TEXAN RESORT  
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# EMERGENCY ALERT SYSTEMS FOR IPTV HEAD-ENDS

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“The FCC has mandated that all broadcasters and video providers adhere to the FCC EAS rules and Regulations. THIS INCLUDES CABLE TV OPERATORS AND NOW IPTV OPERATORS!”

This last statement is not quite true at the present time ... IT'S DEBATABLE, BECAUSE OF TERMINOLOGY ... But you can rest assured it will become true.

WE will address this later in more detail.

# WHAT IS EAS?

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**EAS is the new digital Emergency Alert System adopted by the FCC to replace the analog EBS system and will form an Emergency information super-highway to route emergency messages to the public quickly and accurately.**

# HISTORY OF EMERGENCY ALERT

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- 1951, President Truman established “conelrad”-AM Radio 640 or 1240 kHz
- 1960 was obsolete by improved guidance system
- 1963, President Kennedy established Emergency Broadcast System (EBS) - Audio two-tone alert signal - Stations allowed to transmit on their own frequency
- Mid 1970, EBS was endorsed nationally - FCC: Federal Communications Com - FEMA: Fed Emergency Management Agency - NOAA: National Oceanic & Atmospheric Administration – NWS: National Weather Service

- 1990, President Bush (#1) directed the FCC to develop a replacement system for EBS that would include Cable Television and meet today's demands.
- 1991, SCTE President Wendell Woody established a SCTE Engineering Standards, EBS Subcommittee. The subcommittee appointments were:
  - Chairman: Ken Wright, Jones Cable
  - V. Chairman West: Steve Johnson, Time Warner
  - V. Chairman East: Mike Smith, Adelphia Cable
  - Secretary: Steve Dozier, Hughes Microwave

The Subcommittee's charter was to "Develop Filings for submission to the FCC regarding EBS issues".

# IMPLEMENTATION OF EAS RULES

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January 1, 1997 - Broadcasters  
(Extended to July 1, 1997)

July 1, 1997 - Large Cable Systems  
(Extended to October 1, 1998)

October 1, 2002 - Small Cable Systems

Plus waiver's extensions: 12 - Months  
18 - Months  
24 - Months  
36 - Months  
Plus waiver  
Plus waiver  
Plus waiver

# EAS RULES & TERMINALOGY

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- LP-1: Local Primary Monitoring Station (First)
- LP-2: Local Primary Monitoring Station (Alternate)
- NOAA – Optional Weather Alerts
- STATE PLAN: Co-Chairman's (Broadcast & Cable TV)
- FEDERAL INFORMATION PROCESS SYSTEMS –  
“FIPS”
  - > State “FIPS” Number (or Code)
  - > County “FIPS” Number (or Code)

# APPROVED STATE PLANS

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Alabama [www.sbe.org/eas/aleascvr.html](http://www.sbe.org/eas/aleascvr.html)

Alaska [www.ak-prepared.com/ctoc/easplan.htm](http://www.ak-prepared.com/ctoc/easplan.htm)

Arizona [www.azbroadcasters.org/easplan/eas.html](http://www.azbroadcasters.org/easplan/eas.html)

California [eas.oes.ca.gov](http://eas.oes.ca.gov)

Colorado [www.startcolorado.com/eas/](http://www.startcolorado.com/eas/)

Connecticut [www.ctba.org/](http://www.ctba.org/)

D.C. [www.sbe37.org/html/eas2.html](http://www.sbe37.org/html/eas2.html)

Florida [www.fab.org/ebstoeas.htm](http://www.fab.org/ebstoeas.htm)

Georgia [www.gab.org/PDF%20Files/EASPLAN497%20doc.pdf](http://www.gab.org/PDF%20Files/EASPLAN497%20doc.pdf)

Hawaii [www.scd.hawaii.gov/EAS\\_Plan.pdf](http://www.scd.hawaii.gov/EAS_Plan.pdf)

Idaho [www.bhs.idaho.gov/agency/eas.htm](http://www.bhs.idaho.gov/agency/eas.htm)

Illinois [www.ilba.org/downloads/FCC/IL\\_2005\\_EAS\\_PLAN.pdf](http://www.ilba.org/downloads/FCC/IL_2005_EAS_PLAN.pdf)

Indiana [www.wndu.com/eas/](http://www.wndu.com/eas/)

Kansas [www.kab.net/](http://www.kab.net/)

Louisiana [www.laeas.org/](http://www.laeas.org/)

Maine [www.mab.org/](http://www.mab.org/)

Massachusetts [www.massbroadcasters.org/](http://www.massbroadcasters.org/)

Michigan [www.michmab.com/eas.html](http://www.michmab.com/eas.html)



Minnesota [www.dps.state.mn.us/emermgt/EOP/index.html](http://www.dps.state.mn.us/emermgt/EOP/index.html)

Mississippi [www.msbroadcasters.org/home.html](http://www.msbroadcasters.org/home.html)

Missouri [www.mbaweb.org/eas/eas.asp](http://www.mbaweb.org/eas/eas.asp)

Nebraska [www.nebraska.gov](http://www.nebraska.gov)

Nevada [www.nevadabroadcasters.com/mainfiles/amber.shtml](http://www.nevadabroadcasters.com/mainfiles/amber.shtml)

New Jersey [www.njsecc.net/](http://www.njsecc.net/)

New Mexico [www.sbe34.org/EAS/NM\\_EASPLAN.PDF](http://www.sbe34.org/EAS/NM_EASPLAN.PDF)

North Carolina [www.ncbroadcast.com/](http://www.ncbroadcast.com/)

Ohio [www.sbe33.org/eas.html](http://www.sbe33.org/eas.html)

Oklahoma [www.oabok.org/index.html](http://www.oabok.org/index.html)

Oregon [www.broadcast.net/~sbe124/or\\_eas/or\\_plan.html](http://www.broadcast.net/~sbe124/or_eas/or_plan.html)

Pennsylvania

[www.pema.state.pa.us/pema/lib/pema/paeasplan/pa\\_eas\\_plan\\_2004.pdf](http://www.pema.state.pa.us/pema/lib/pema/paeasplan/pa_eas_plan_2004.pdf)

Texas [www.tab.org](http://www.tab.org)

Tennessee [www.tabtn.org/](http://www.tabtn.org/)

Vermont [www.vab.org/VT%20EAS%20plan.html](http://www.vab.org/VT%20EAS%20plan.html)

Virginia [www.jmu.edu/wmra/eas/vaplan.html](http://www.jmu.edu/wmra/eas/vaplan.html)

Washington [www.wsab.org/eas/eas.html](http://www.wsab.org/eas/eas.html)

Wisconsin [www.sbe24.org/eas/](http://www.sbe24.org/eas/)

Wyoming [www.wyomingbroadcasting.org](http://www.wyomingbroadcasting.org)

# The following States have not Provided Links to Copies of their Plans

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Arkansas

Iowa

Kentucky

Montana

New Hampshire

New York

North Dakota

South Carolina

South Dakota

Utah

West Virginia

# ORIGINAL EVENT CODES

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- EAN Emergency Action Notification (National)
- EAT Emergency Action Terminated (National)
- NIC National Information Center
- NPT National Periodic Test
- RMT Required Monthly Test
- RWT Required Weekly Test
- TOA Tornado Watch
- TOR Tornado Warning
- SVA Severe Thunderstorm Watch
- SVR Severe Thunderstorm Warning
- SVS Severe Weather Statement
- SPS Special Weather Statement
- FFA Flash Flood Watch
- FFW Flash Flood Warning
- FFS Flash Flood Statement

- FLA Flood Watch
- FLW Flood Warning
- FLS Flood Statement
- WSA Winter Storm Watch
- WSW Winter Storm Warning
- BZW Blizzard Warning
- HWA High Wind Watch
- HWV High Wind Warning
- HUA Hurricane Watch
- HUW Hurricane Warning
- HLS Hurricane Statement
- TSA Tsunami Watch
- TSW Tsunami Warning
- EVI Evacuation Immediate
- CEM Civil Emergency Message
- DMO Practice/Demo Warning
- ADR Administrative Message

# NEW EVENT CODES

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- AVW      Avalanche Warning
- AVA      Avalanche Watch
- CAE      Child Abduction Emergency ***AMBER ALERT***
- CDW      Civil Danger Warning
- CFW      Coastal Flood Warning
- CFA      Coastal Flood Watch
- DSW      Dust Storm Warning
- EQW      Earthquake Warning
- FRW      Fire Warning
- HMW      Hazardous Materials Warning
- LEW      Law Enforcement Warning
- LAE      Local Area Emergency
- NMN      Network Message Notification
- TOE      911 Telephone Outage Emergency

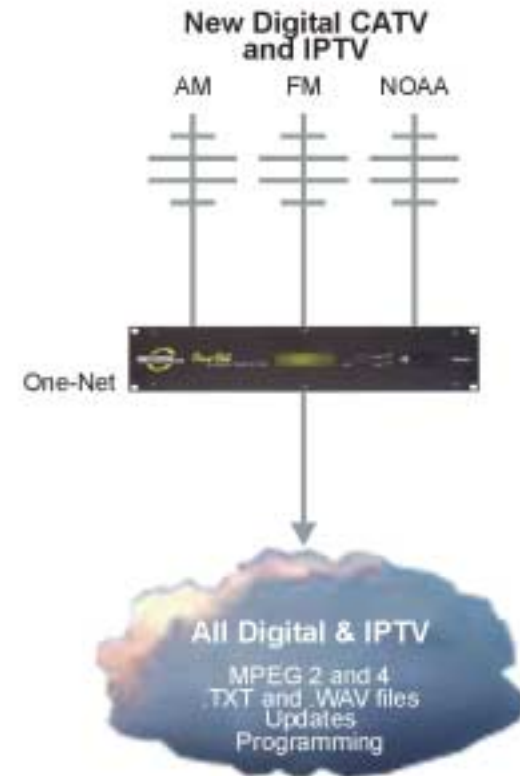
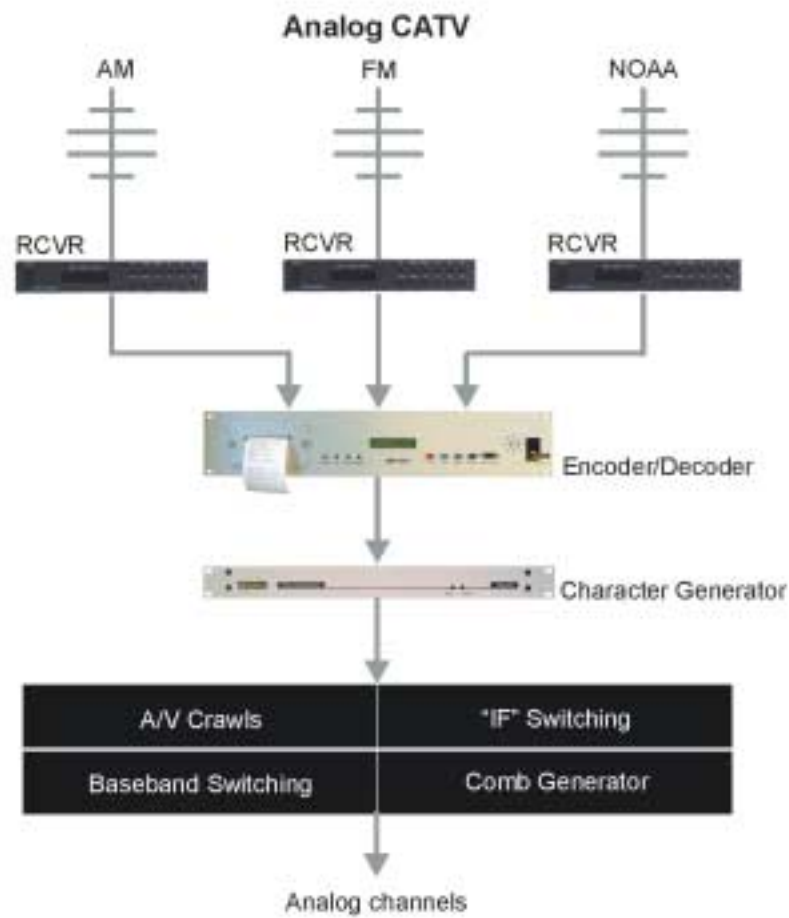
- NUW Nuclear Power Plant Warning
- RHW Radiological Hazard Warning
- SPW Shelter in Place Warning
- SMW Special Marine Warning
- TRW Tropical Storm Warning
- TRA Tropical Storm Watch
- VOW Volcano Warning

# EAS – HOW to COMPLY

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- Install proper EAS equipment
- Apply to all downstream video channels
- Broadcast stations are your option
- Monitor at least two (2) stations (LP-1 & LP-2)
- Receive and Log week test sent by these stations
- Relay (transmit) your own RANDOM weekly test
- Receive and relay (transmit) Monthly test from your LP-1 or LP-2
- Keep a log of alerts received and relayed for inspection

# EAS SYSTEM METHODS and EQUIPMENT INVOLVED

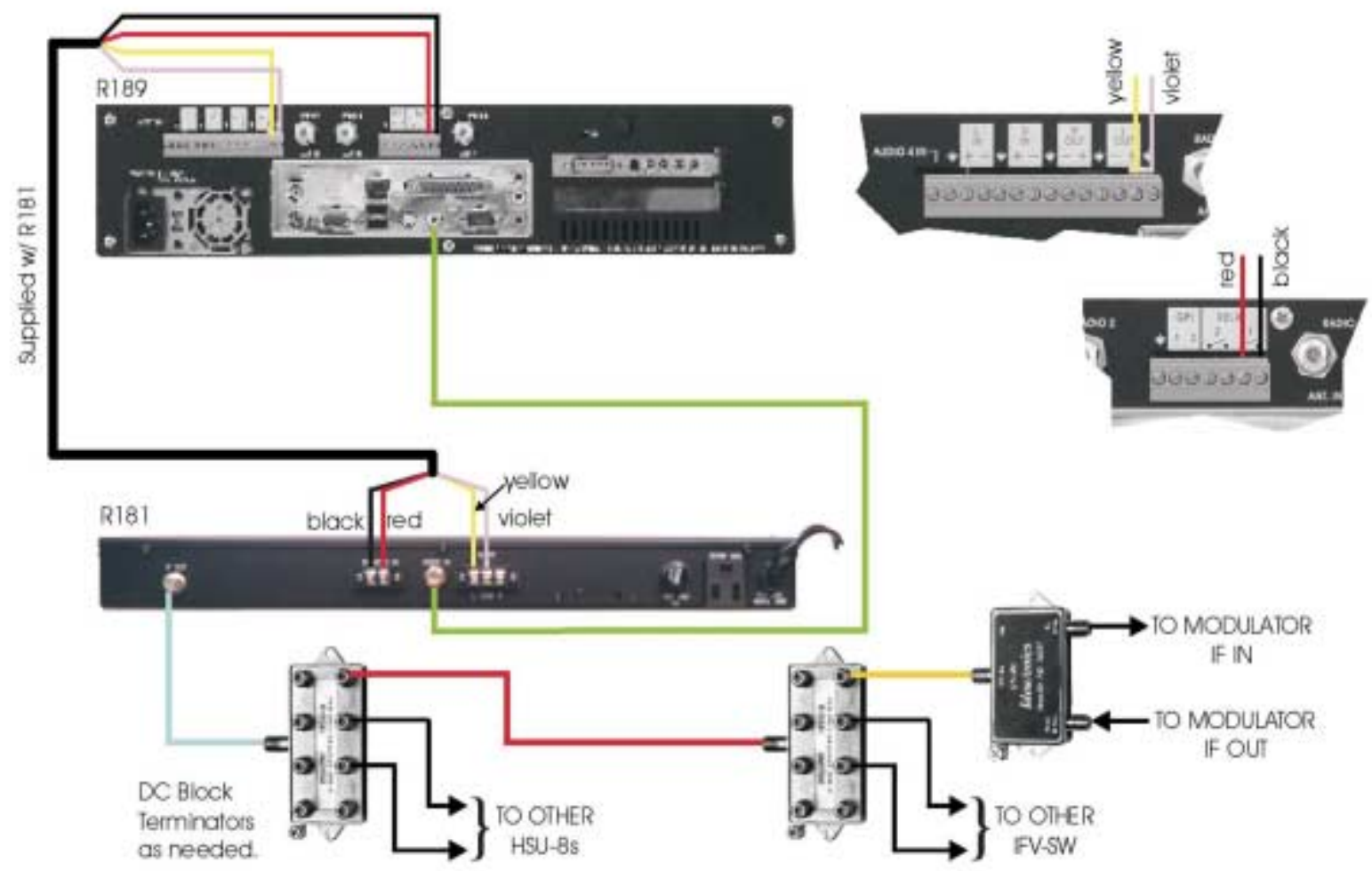


Courtesy of Monroe Electronics



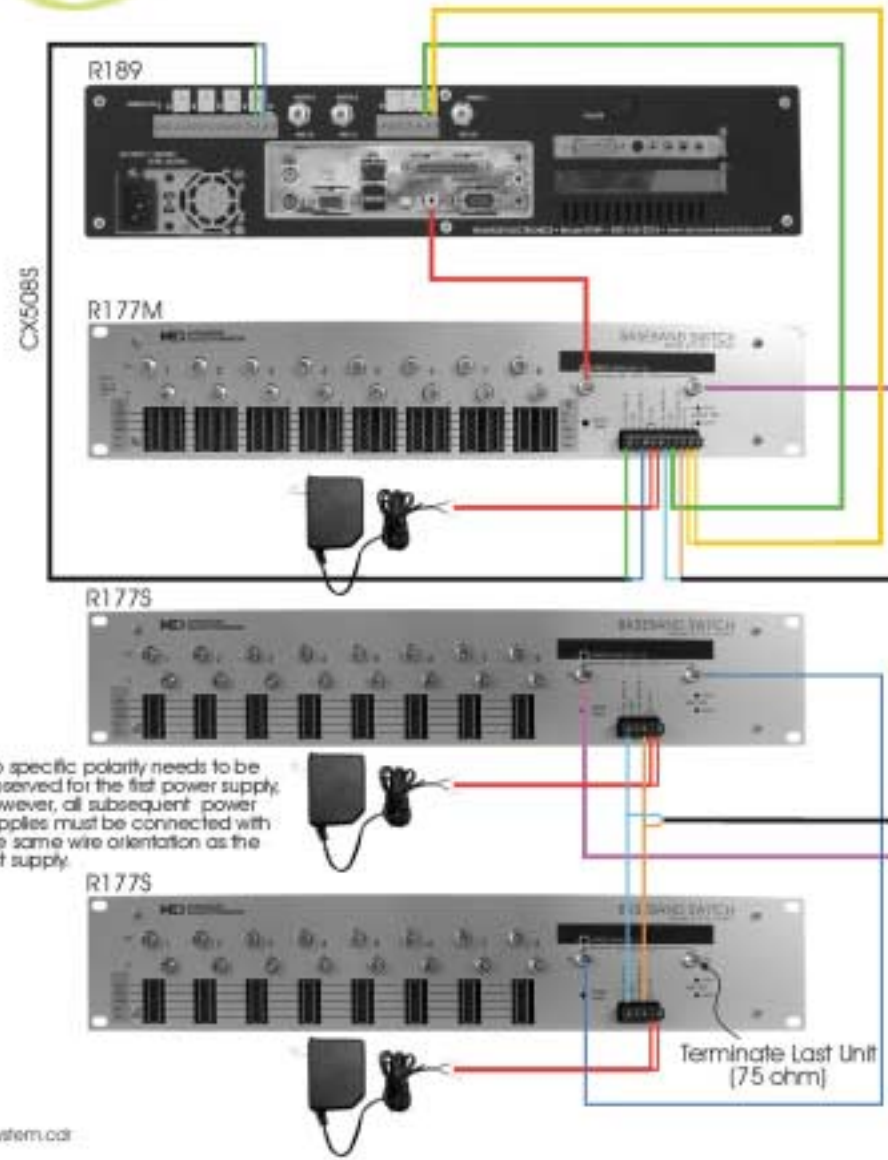


# IF System

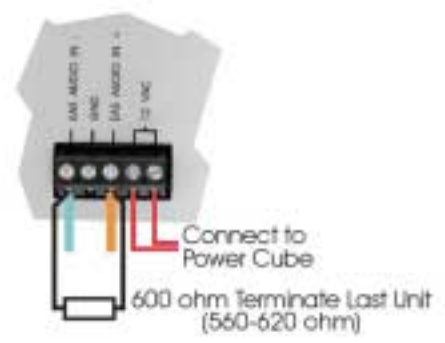




# Baseband System

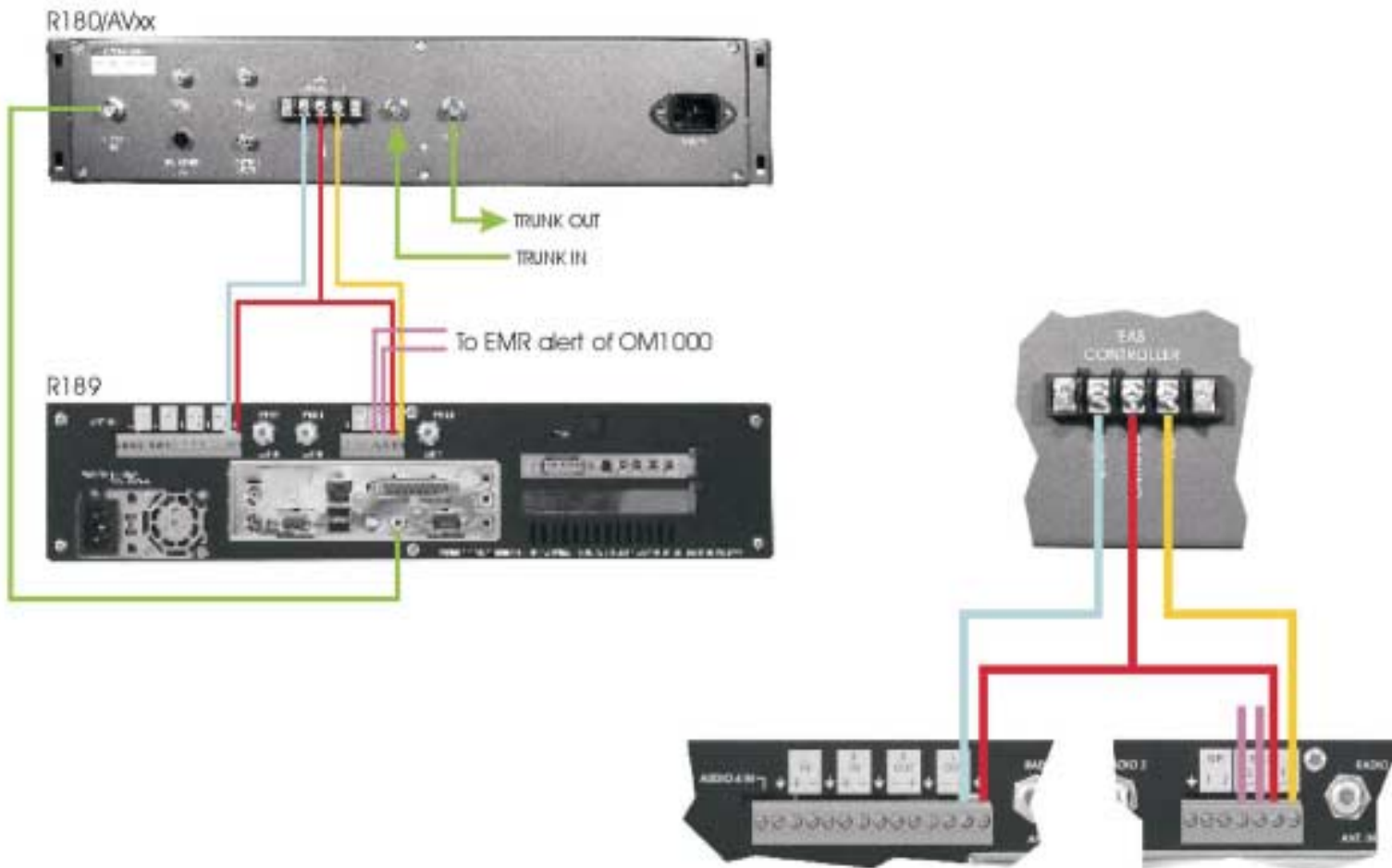


No specific polarity needs to be observed for the first power supply; however, all subsequent power supplies must be connected with the same wire orientation as the first supply.





# Comb System



# EAS APPLICATION METHODS

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- AUDIO/VIDEO CRAWLS
- “IF” SWITCHING
- BASEBAND SWITCHING
- COMB GENERATORS
- HYBRID COMBINATION NOW
- NEW DIGITAL SCTE STANDARD SCTE-18 (DVS-644)
- SINGLE BOX
- PLUS SOFTWARE: DVS-164  
DVS-168  
EAS-NET (IPTV)  
MPEG2 (AUDIO)  
MPEG4 (IPTV)  
R189/99 (DEC TO EN)



### Specifications

#### MPEG Video Formats:

- MPEG2: D1-704
- MPEG2: 2/3-D1
- MPEG2: 1/2-D1
- MPEG2: D1-720
- MPEG2: D1-640
- MPEG1: SIF
- MPEG1: QSIF

#### MPEG Audio Formats:

- MPEG1 : Layer 1
- MPEG1 : Layer 2 (Standard)
- MPEG1 : Layer 3 (MP3)
- AC3 Dolby

#### Video Encoder:

Generates 13818 (MPEG-2) and 11172 MPEG-1 compliant elementary streams (ES). Operates up to 30 frames per second.

**One-Net**  
EAS Solutions

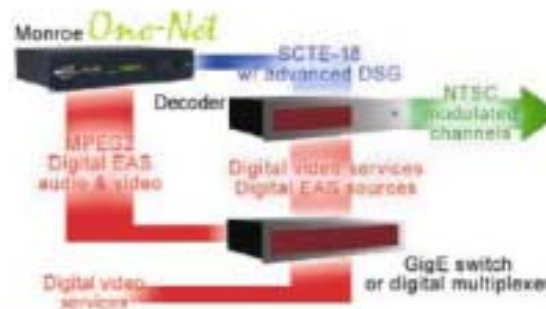
830-871-6001  
585-765-2254 | fax: 585-765-9330  
100 Housat Ave. | Lyndonville | NY | 14398  
[www.monroe-electronics.com](http://www.monroe-electronics.com)

## MPEG2 Option for One-Net

### Features

- Real time MPEG-2 and MPEG-1 Encoder
- Supports programmable bit rates for both Audio and Video portion of the MPEG stream.
- Supports variable Audio sampling rates
- Supports Unicast or Multicast streaming of the Audio and Video.
- Supports multiple resolutions (704x480, 640x480, etc)
- Video input is fed to the output connector for easy monitoring and adjustments
- Onboard Audio codec

### Simulcast Solution in One-Box



### Description

The Monroe Electronics R189 One-Net is available with the MPEG2 option. This option allows the One-Net the ability to provide an economical means to add audio/video to SCTE-18. Primarily used as means to add audio to the SCTE-18 message, it can also be used as a Digital Audio/Video feed for EAS.

MPEG2 w/CT-18188  
Specifications subject to change without notice. (Printed in USA) Copyright © 2008 Monroe Electronics Inc.



### Specifications

#### MPEG Video Formats:

MPEG4: 720x480  
MPEG4: 704x480  
MPEG4: 352x240  
MPEG2: 720x480  
MPEG2: 704x480  
MPEG2: 352x240  
MPEG1: 352x240

#### MPEG Audio Formats:

MPEG1 : Layer 1  
MPEG1 : Layer 2 (Standard)  
MPEG1 : Layer 3 (MP3)  
AC3 Dolby

#### Video Encoder:

Generates 14496 (MPEG-4),  
13818 (MPEG-2) and 11172  
(MPEG-1) compliant elementary  
streams (ES).  
Operates up to 30 frames per  
second.

**One-Net**  
EAS Solutions

800-821-8001  
585-765-2254 | fax: 585-765-0330  
130 Housat Ave. | Lyndonville | NY | 14098  
[www.monroe-electronics.com](http://www.monroe-electronics.com)

## MPEG4 Option for One-Net

### Features

- Real time MPEG-4, MPEG-2 and MPEG-1 Encoder
- Supports programmable bit rates for both Audio and Video portion of the MPEG stream.
- Supports variable Audio sampling rates
- Supports Unicast or Multicast streaming of the Audio and Video.
- Supports multiple resolutions (720x480, 704x480, etc)
- Video input is fed to the output connector for easy monitoring and adjustments
- Onboard Audio codec



### Description

The Monroe Electronics R189 One-Net is available with the MPEG4 option. This option allows the One-Net the ability to provide an economical means to add a Real Time EAS streaming MPEG message in a variety of MPEG formats.

MPEG4 is not a standard. Specifications subject to change without notice. © Monroe Electronics, Inc. 2008

# EAS & IPTV

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1. All middleware suppliers have acknowledged and are supporting EAS interfacing of their equipment.
2. Perhaps 80% to 90% of the Rural independent IPTV providers have implemented EAS equipment into their plants.
3. When Super Head-ends (SHE) are established, the EAS equipment is located at each Remote Video Hub Operation (RVHO). This keeps EAS local with respect to the State and County "FIPS" code areas.
4. In response to the FCC EB Docket No. 04-296, the RBOCs have stated they plan to participate in EAS and will "pass through" ALL EAS ALERTS.



5. The FCC rules at present do not specifically identify a mandate for IPTV. However, the rules do identify “Multi-Channel Video Providers”.
6. The IPTV DEBATE: IPTV is “Single Channel” or “Video-On-Demand” and may not fall under the Milti-Channel rule. It is believed this position is taken NOT TO AVOID EAS, but rather to avoid being classified under all the other Cable TV rules and regulations.
7. The FCC has indicated to me IPTV EAS rules are not a high priority because the IPTV operators are complying or making plans to comply with EAS. However, IPTV will eventually be identified in the rules.
8. In general, the IPTV Operators are taking the GOOD-CITIZENS position by complying with the EAS rules, regardless of how the law reads today.



# EAS FUTURE PREDICTIONS

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**EAS IS OPERATED BY FEMA AND IS UNDER THE MANAGEMENT OF HOMELAND SECURITY. THE EAS RULES ARE DEVELOPED AND ENFORCED BY THE FCC.**

- 1. EAS WILL NOT GO-AWAY, BUT WILL EXPAND ITS SCOPE AND APPLICATIONS.**
- 2. EAS WILL EXPAND INTO ALL COMMUNICATIONS METHODS.**
- 3. EXPANSION WILL INCLUDE WIRELESS AND SATELLITE.**
- 4. HOME APPLICANCES WILL HAVE BUILT-IN EAS ALERT DEVICES.**
- 5. EAS WILL BE COMMUNICATED TO CELL PHONES.**

**THANK YOU**

# The IP Based Monroe *One-Net* The Most Advanced, EAS Encoder/Decoder

- **IP Based**
- **Built in Radios**  
Tunable to AM/FM or NOAA
- **Remote Access**  
Through any Internet Browser
- **EAS Event Log**  
Stores 1,000's of Events to
- **Optional Internal MPEG2 Encoder**
- **EAS-Net Software**  
for Unit to Unit Communication

#### Inputs:

Three "F" connector type antenna connections for the built in radios that can be tuned to AM/FM/NOAA frequencies.

One Auxiliary Audio Input. Most typically used by the Monroe Model 988 Digital/Analog Local Override Interface, or by an additional radio source.



#### Outputs:

2 Normally open contact closures.

#### Ethernet Interface:

- DVS644 with Advanced DSG. This is an updated version of SCTE18 that provides a text message within an MPEG packet, through an edge device, to any SCTE18 enabled device downstream.
- DVS168 communicates a .txt and a .wav file to S/A's DCM.
- MPEG2- This optional internal MPEG2 encoder provides a real time streaming MPEG2 EAS message. This can be used to provide an EAS audio source to certain devices using SCTE18.
- EAS-NET is tagged meta-protocol. It defines an extensible, dynamically configured framework for communicating pre-defined EAS data (meta-key tags) to another devices, such as another One-Net over a LAN.



Courtesy of Monroe Electronics