

# ***Systems Alert Monitor***

VIDEO+AUDIO+EMAIL STATUS MONITORING SYSTEM

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## **DESCRIPTION**

The Systems Alert Monitor ("SAM") is a versatile system for monitoring the equipment used in a typical broadcast facility. SAM will detect the status or alarm outputs of equipment in use, then display "Alert" text messages on a video monitor informing personnel to take necessary action. The Systems Alert Monitor constantly scans up to 15 Alert inputs. Whenever any Alert input is triggered, a text box appears on the monitor. SAM can also produce an audio alert, playing an audio message whenever a selected Alert is triggered. In addition to video and audio notifications, SAM can also send an email when specified Alerts are triggered.

Alert-trigger inputs to SAM can be any momentary or maintained "dry" GPI contact closure. There are two POTS ring detectors, plus two DC inputs for source equipment that provide DC status signals. These can be assigned to any Alert inputs. An optional SAM Input Isolator is available to add input isolation to six more SAM Alert inputs.

## **INSTALLATION**

The SAM Input Interface unit should be installed where there is access to the status-output wiring of the equipment to be monitored. SAMs video output is HDMI. In most cases, the maximum cable length for HDMI video is about 100 feet, depending upon the quality of the HDMI cable. Keep this in mind when locating the SAM Input Interface unit. For installations where the Input Interface must be farther from the video monitor, see the notes at the end of this section regarding cat5/cat6 video distribution.

**ALERT INPUTS:** SAM can monitor up to 15 devices via the 15 Alert inputs. The Alert inputs may be either momentary or maintained\* contact closures. The Alert inputs are connected to three 6-position plug-in terminal blocks. Connect one side of each input to an Alert input; the other side of each input will connect to the COM terminal. (ALL Alert inputs reference to the COM terminal, hence all should be *isolated* contact closures.) \*Be sure to configure the MODE NUMBER according to the input type, either momentary or maintained! Carefully read the SETUP instructions on Page 2.

**DC INPUTS:** Some equipment provides a DC voltage (instead of an isolated closure) as a status output. For such gear, SAMs two DC Input Isolators can be used. Connect DC input signals to the + and – input terminals, then connect the OUT terminal to any Alert input. **NOTE:** If more DC inputs are needed, the optional **SAM Input Isolator** unit will add six additional DC input isolators to the system.

**PHONE LINES:** SAM includes two Ring Detectors that will sense a ringing "POTS" telephone line. To trigger an Alert with a phone line, connect the phone line to the TIP and RING terminals, then connect the OUT terminal to any Alert input. (SAM will not answer or seize the line; it will only detect when the line rings.) **NOTE:** If more ring detectors are needed, the optional **SAM Input Isolator** unit will add five additional POTS ring detectors to the system.

**VIDEO OUTPUT:** SAMs video output is via the HDMI connector on the right side of the Input Interface unit. Standard HDMI cabling can be used; the maximum cable length is about 100', depending upon the quality of the cable. For installations where the SAM interface unit must be more than 100 feet from the video monitor, an inexpensive HDMI-to-cat5 (or coax) converter can be used, with cat5 or coax cabling between the SAM unit and the monitor. This arrangement often allows cable runs in excess of 500 feet of cat5 or coax cable. For installations where a SAM unit needs to feed multiple video monitors (e.g., to several studios), use an HDMI-to-cat5/coax converter that has multiple outputs. These video interface units are commonly available from commercial video suppliers and broadcast video vendors. (See [www.mcmelectronics.com](http://www.mcmelectronics.com), [www.hdtvsupply.com](http://www.hdtvsupply.com), [www.bhphotovideo.com](http://www.bhphotovideo.com), etc.)

**USB PORTS:** To configure SAM, a standard PC keyboard and mouse will be required. Connect these to SAMs USB ports located on the rear of the Input Interface unit.

**LAN PORT:** If SAMs Email function will be used, connect the SAM Input Interface unit to the facility LAN via the RJ45 connector located on the rear of the unit.

**POWER INPUT:** Connect the included power supply via the micro-USB connector on the right side of the unit.

**INITIAL SETUP**

Turn on the video monitor, and make sure the correct HDMI input is selected. Now plug in the SAM power supply. (The first time SAM is started, it is necessary to check the "I Agree" box on the End User License Agreement screen.)

**IMPORTANT!** DO NOT power-down SAM by "pulling the plug"! ALWAYS use this shutdown procedure:

1. Press ESC key on keyboard.
2. Press F2 to shut down.
3. WAIT for the green "Shutdown" LED to flash. (Green LED is on rear of unit by the USB ports.)
4. Now disconnect from power.

After the software loads (about 30 seconds) a "countdown" will appear next to an on-screen **SETUP** button. **Click the SETUP button** to start the SETUP screen. The Setup screen is where the user can customize the appearance and operation of SAM. The screen will initially display the default text and user options for each of the 15 Alerts.

**SETTING UP EACH ALERT**

**TEXT and COLOR:** Left-click within the text box, then use the keyboard to insert the desired Alert text. To change the text box color, right-click to open the color selection box. Slide the Red, Green, and Blue color "sliders" to create the desired color. (Note that darker, deeper colors will provide the best contrast against the white text.)

**ALERT MODE NUMBER:** The **MODE NUMBER** box must be correctly set for each Alert input. *Read carefully!...*

**MOMENTARY INPUTS:** If the input signal is a MOMENTARY contact closure, the Mode Number will determine how long, in seconds, the Alert is displayed on-screen before it is automatically reset off. The Mode Number may be any value between **5 and 5,000 seconds**. To keep an Alert on-screen indefinitely (requires a manual reset), enter **9999**.

**MAINTAINED INPUTS:** If the input signal is a MAINTAINED contact closure, the Mode Number **MUST be 8888**.

**RING DETECTORS:** For Alerts that indicate a ringing phone line, the Mode Number **MUST be 7777**.

**EMAIL ALERT:** To have an Alert trigger an email, check the EMAIL ALERT box.

**AUDIO ALERT:** To have an Alert trigger an audio message, check the AUDIO ALERT box. The AUDIO INTERVAL determines how often audio messages will repeat. It can be any number from 10 to 500 seconds.

Use the chart below to record Alert settings:

CH#	TEXT	MODE	AUD?	EML?	CH#	TEXT	MODE	AUD?	EML?	CH#	TEXT	MODE	AUD?	EML?
1					2					3				
4					5					6				
7					8					9				
10					11					12				
13					14					15				

**EMAIL SETUP**

SAM can send an email to up to three recipients. SAM uses SMTP email only; security settings must be disabled. To configure the email function, enter the email address of each recipient separated by commas, for example: john@gmail.com,paul@gmail.com,george@gmail.com. Insert appropriate information in the Password, Server, and Port text boxes. (If unsure, consult your IP Dept. or visit <https://www.arclab.com/en/kb/email/list-of-smtp-and-pop3-servers-mailserver-list.html>.)

After all setup options have been selected, click the **SAVE/RUN** button to start normal operation.

## AUDIO ALERT FILES

SAM is pre-loaded with audio files that are linked to each of the default Alerts. To make any changes to the default audio files (e.g., to link a file to a different Alert) it is necessary to download the file(s) from the Henry Engineering website.

**First, use any PC to prepare a USB thumb drive as follows:**

1. RENAME the drive to **SAMUSB**. In Windows Explorer, **right click drive>properties>rename**.
2. Add two folders to the 'root' of the drive: **SAMAUDIO** and **SAMLOGO** (all upper case).
3. Go to <http://www.henryeng.com/SAM.html> and click the Download button at the bottom of the text. Download all audio files to the **SAMAUDIO** folder on the USB drive.

To link an audio file to a specific Alert, **RENAME** the file the same as the Alert number. For example, to link the file named **offair.mp3** to Alert #5, rename that audio file to **ch5** (lower case). Rename all files that will be used for Audio Alerts.

Any mp3 audio file can be used with SAM if the filename corresponds to an Alert #, e.g., ch1, ch2, ch3, etc. The complete path for a typical audio file on the USB drive **MUST** be: **SAMUSB/SAMAUDIO/ch5.mp3**

NOTE: Most PCs will automatically add the .mp3 file extension, so don't include it in the filename!

SAMs "stock" audio files were created with free software at [www.fromtexttospeech.com](http://www.fromtexttospeech.com), using "Alice" as the voice.

## INSTALLING AUDIO FILES ON SAM

After all audio files have been loaded and named on the USB drive, they can be loaded into SAM.

**FIRST shut down SAM by pressing ESC, then F2. WAIT for the green LED to flash, then power-off.**

Insert the USB drive into any of SAMs USB ports, then power up. The audio files will automatically copy to SAMs internal memory and will be linked to the Alerts. (The USB drive can be removed the next time SAM is shut down.)

## LOGO SETUP

SAM can display a station logo when no Alerts are active. To enable this function, check the **Display Logo** checkbox in the Setup screen. **The logo MUST be a jpg file, 350 pixels wide.**

The logo file is loaded into SAM via a USB thumb drive. See the instructions above for Audio Alert Files.

There will be a **SAMLOGO** folder on the USB drive. Copy the logo file into this folder, and rename it to **logo.jpg** (lower case). The complete path **MUST** be: **SAMUSB/SAMLOGO/logo.jpg**

**NOTE:** Most PCs will automatically add the .jpg file extension automatically, so don't include it in the filename!

## INSTALLING THE LOGO FILE ON SAM

**FIRST shut down SAM by pressing ESC, then F2, and WAIT for the green LED to flash, then power-off.**

Insert the USB drive into one of SAMs USB ports, then power-up. The logo file will automatically copy to SAMs internal memory. (The USB drive can be removed the next time SAM is shut down.)

## OPERATION

When any Alert input is triggered the corresponding Alert text box will appear on the video monitor. It will flash a few times then become 'solid-on'. If the input is a *momentary* closure, it will stay on-screen for the number of seconds specified by the Mode Number for that Alert. If the input is a *maintained* closure it will stay on-screen until the closure opens.

If the Alert has its AUDIO ALERT box checked, an audio message will play through the HDMI audio output of the monitor. Audio messages will repeat according to the AUDIO INTERVAL time set in the Setup Screen. (For an isolated audio output, use an "HDMI audio extractor" device on SAMs HDMI video output.)

If the Alert has its EMAIL box checked, an email will be sent. If the Alert is on-screen for more than an hour, the email will be resent every 60 minutes.

When no Alerts are active, the logo will be displayed if this function has been enabled.

**UTILITY FUNCTIONS**

- RESET 9999:** To reset all "9999" Alerts off, connect a momentary closure between RESET 9999 and COM.
- RESET ALL:** To manually reset ALL Alerts off, connect a momentary closure between RESET ALL and COM.
- MASTER +5V:** This terminal provides +5VDC at 50 mA (max) whenever any Alert is active.
- PA MUTE:** This terminal provides +5VDC at 50 mA (max) whenever any audio message is playing. It can be used to mute or control a PA system, e.g., so that SAM audio messages can override normal "house audio".
- REBOOT:** A closure between this terminal and COM will reboot the system.
- RED LED:** The red LED lights to indicate power is applied to the unit.
- YELLOW LED:** The yellow LED lights whenever any Alarm is active.
- GREEN LED:** The green LED lights to indicate that it is safe to disconnect power.

**END USER LICENSE AGREEMENT:**

**Software Product: SYSTEMS ALERT MONITOR ("SAM")**

This End-User License Agreement (EULA) is a legal agreement between you (either an individual or a single entity) and the mentioned author (Henry Engineering and Michael Ringenberger) of this Software for the software product identified above.

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**SPECIFICATIONS**

Alert Messages	User defined text, 15X
Display Time	3 sec to always ON
Audio Alerts	mp3 files, user assignable
Email Alerts	SMTP protocol via LAN
Alert Inputs	Momentary or maintained dry cont. closure, 15X
POTS Inputs	Telco ring detect, 2X, assignable
DC Inputs	5-24 VDC input, 2X, assignable
Reset Input	Closure cancels Alert messages
Video Output	720p HDMI video + audio
Master Output	+5 VDC / 50mA when any Alert is active
Audio Contr. Output	+5 VDC / 50mA when audio Alert is playing
USB ports	4, for keyboard, mouse, thumb drive for user logo, mp3 files
Power Input	5W, plug-in power supply included
Size	7.75"w X 4.75"d X 2.25"h, w/ mounting flanges
Input Isolator, optional	5-24VDC or Ring Detect, 5X, assignable 5-24 VDC input, 1X, assignable

Specifications subject to change without notice.

