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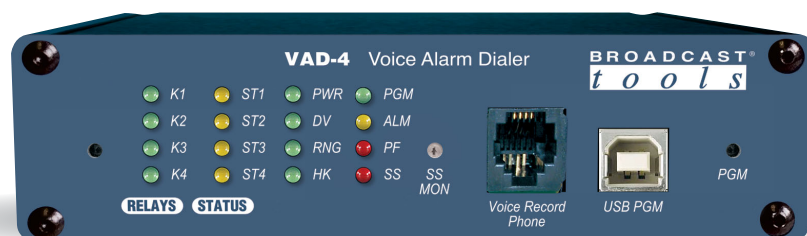
PROBLEM SOLVED

Installation and Operation Manual

VAD-4
Voice/Pager Alarm Auto Dialer

with four status inputs, four control relays, integrated stereo silence sensor, dual temperature sensor and power failure Input.

Firmware Version: 1.08 and above – Manual update: 9/23/2013
If you need a firmware upgrade, contact Broadcast Tools®

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SS 8.1 MLR
Stereo Switcher/Router

INTRODUCTION

Thank you for your purchase of the VAD-4, Voice/Pager Alarm Auto Dialer, which we will refer to through out the manual as the VAD-4. We're confident this product will give you many years of dependable service. This manual is intended to give you all the information needed to install and operate the product.

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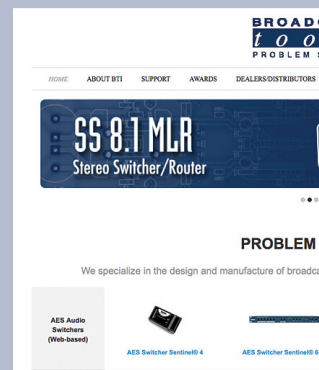
NOTE:

This manual should be read thoroughly before installation and operation.

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PRODUCT DESCRIPTION

The VAD-4 is a user programmable four status input multi-number voice/pager auto dialer designed for dial out paging and/or voice message notification.

The VAD-4 is equipped with four user controllable SPDT relay outputs, four optically isolated status inputs, two temperature sensor ports, power failure input and unbalanced stereo silence sensor. The inputs may be configured to generate alarm phone calls, which when tripped, will sequentially dial a pager and/or up to four different phone numbers and play back a user recorded message corresponding to the tripped input.

The four SPDT relays may be programmed for momentary, latching or tone duration operation. A fifth relay can be configured to close when an alarm is activated.

Features:
- Four user programmable wet or dry optically isolated status inputs.
- Four SPDT one amp relays with momentary, latching or tone duration operation.
- Two Fahrenheit/Celsius temperature sensor ports. Sensors optional.
- Stereo Silence Sensor with remote telco audio monitoring.
- Power failure alarm input port.
- Balanced telco caller audio output port.
- Front panel LED indicators for most operational activities.
- Front panel USB programming serial port, program switch with LED indicator.
- Front panel RJ-11 TT telephone jack used for user voice response recording.
- Local programming and recording. The VAD-4 is supplied with spoken words and phases in English, while the user is free to record words and phrases in their language
- Stores up to four 32-digit phone numbers and one 32-digit pager number with up to 16 digits of pager data.
- CPC (WINK/COD) detection.
- Non-Volatile Memory.
- User programmable message repeat and global lap counter.
- User programmable ring delay.
- Phone line and power supply with built-in surge protection.
- 12 volt DC universal AC input wall transformer. Optional international AC plug adapters available.
- Plug-in euroblock screw terminals for status inputs, relays, telco audio balanced output and stereo silence sensor input.
- Three units may be installed on one RA-1, RU-1 rack shelf.

APPLICATIONS

Alarm notification, Tower Light monitoring, Transmitter, Translator and/or LPFM site and Studio security/burglar/fire/equipment alarm notification, Inexpensive remote control system and/or remote reset (AC power reboot) of file servers, computers, etc.

INSPECTION

Please examine your VAD-4 carefully for any damage that may have been sustained during shipping. If any is noted, please notify the shipper immediately and retain the packaging for inspection by the shipper. The package should contain the VAD-4, one A/B USB cable, one 7 foot modular telephone cable and a 12 VDC @ 500 ma or 1 amp wall transformer. This manual is available from the Broadcast Tools web site.

Front panel
LED indicators
- "K1"-"K4" LEDs: Lit when the corresponding relay is on (green.)

- "ST1"-"ST4" LEDs: Lit when the corresponding status input is active (yellow.)

- "PWR" LED: Indicates that the VAD-4 is powered up (green.)
- "DV" LED: Indicates valid DTMF tone decode (green.)
- "RING" LED: Lit when ringing is detected on line (green.)
- "HK" LED: Indicates that the VAD-4 has seized the line and is off-hook (green.)

- "PGM" LED: Indicates that the VAD-4 is in programming mode (green.)
- "ALM" LED: Lit when an alarm is triggered/active (yellow.)
- "PF" LED: Lit when power is not present at PF input, flashing when PF alarm is triggered (red.)
- "SS" LED: Lit when silence sensor audio above alarm threshold level, flashing when SS alarm is triggered (red.)

SS MON level adjustment trimmer
Used to adjust the audio level sent to the phone line for monitoring.

Voice Record Phone Jack
RJ11 jack for connection to a touch tone phone when recording new voice prompts

USB PGM Port
This type B USB port is used to interface the VAD-4 to the computer for configuration via a virtual COM port. See the "Programming" section of this manual for more information.

PGM button
Used to toggle in and out of programming mode. See the "Programming" section of this manual for more information.

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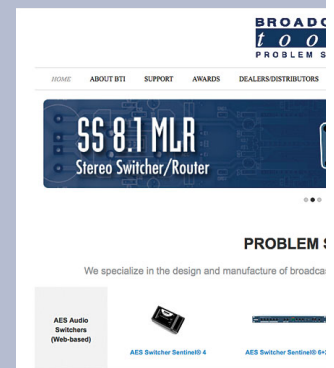
INSTALLATION

Installation of the VAD-4 in high RF environments should be performed with care. Shielded cable is suggested for all control and audio I/O. All shields and station ground should be tied to the "Chs Gnd" terminal. It is recommended that all cables connected to the VAD-4 be looped through ferrite cores to suppress RF. Surge protection with RF filtering such as the Tripp Lite "ISOBAR" line of AC power surge suppressors is also suggested for the wall transformer. The purchase of an inexpensive UPS will provide back-up power in case of a power outage.

CAUTION! Some features may require the removing of the VAD's printed circuit board. Caution should be observed. Hazardous voltages may be present on the printed circuit board!

Connecting your equipment:

The VAD-4 interfaces to your equipment through the rear panel plug-in euroblock screw terminals. Follow the chassis labels for the desired relays, inputs and audio connections. Remove about 1/8" of insulation, insert the wires into the plugs, and tighten the screws. Be certain that no bare wires are exposed. The terminals accommodate wire sizes from 18 - 28 AWG solid or stranded wire.

(TB1 Top Row)

K3NO	K3CM	K3NC	K4NO	K4CM	K4NC
K1NO	K1CM	K1NC	K2NO	K2CM	K2NC

(TB1 Bottom Row)

(TB2 Top)

ST4A	ST4B	K5NO	K5CM	K5NC	GND
ST1A	ST1B	ST2A	ST2B	ST3A	ST3B

(TB2 Bottom)

(TB3 Top)

Caller- (Output)	Caller+ (Output)	GND
SS-L (Input)	SS-R (Input)	GND

(TB3 Bottom)

Relays:

The VAD-4 has a total for five SPDT relays labeled K1-K5. K1-K4 can be controlled by the user via dial-up while K5 can be configured to provide an alarm tally output.

Connections for relay one (K1) should be made on the K1NO, K1NC and K1CM terminals. For relay two; K2NO, K2NC and K2CM. Relay three; K3NO, K3NC and K3CM. Relay four; K4NO, K4NC and K4CM. Relay five; K5NO, K5NC and K5CM. Limit contact current to 1 amp at 30 VDC.

Note: For safety, never connect 120 VAC circuits to these relays!

Status Inputs:

The VAD-4 has four opto-isolated status/logic inputs. Each input is configured at the factory to accept a dry contact closure; we call this the DRY configuration. To use one of the VAD-4's status inputs with dry contacts, wire the contacts to input channels Ax and Bx (where x is the status/logic input channels number, 1 thru 4) terminals. A closure between an input's A and B terminals will cause the input to go HIGH (turn on.) The four yellow LEDs on the front panel indicate which inputs are active.
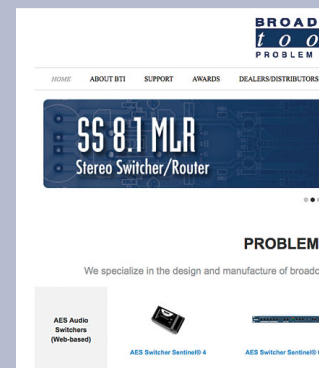
Each input has a four-position configuration header and two jumpers. You can refer to the jumper layout in the appendix for a detailed view. Each jumper is labeled (JPx, where x is the status/logic input) and the header pins 1,2,3,4 are used to configure for WET or DRY operation. The factory default configuration is for a DRY input (Switch, relay contact, open collector) with jumpers between 1 & 2 and 3 & 4. In the DRY configuration, the "A" terminal is ground while the "B" terminal is the cathode of the opto-isolator diode pulled up to 5 volts through a 2.2K resistor.

If an output that you are interfacing with the VAD-4 provides its own voltage then you will need to configure the corresponding input for the WET (floating) configuration. In the WET configuration
the VAD-4's opto-isolated inputs can be triggered by an input voltage from 5 VDC to 24 VDC. To change a status/logic input to WET (floating), remove both jumpers for the input's configuration header (labeled JPx) and place ONE jumper over pins 2 & 3. You may then connect the positive voltage to the input's "A" terminal (anode) and ground or minus voltage to the input's "B" terminal (cathode).
NOTE: Please refer to the appendix for configuration examples and observe proper polarity.

Silence Sensor input:
The stereo 10 k ohm unbalanced inputs are summed together and monitored for silence. BOTH channels MUST go silent to trip an alarm. The alarm threshold is -25dBu. Connect your unbalanced source equipment to either or both inputs (SS-L) and/or (SS-R) and tie the ground to the GND terminal. If your source equipment is balanced, use the "+" and GND terminal from the source. Your source equipments "-" (negative) terminal should never be grounded. Shields should be tied to the "Chs Gnd" terminal.

The SS LED is illuminated when you have audio applied to the inputs. If no audio is present or the audio is below the alarm threshold the SS LED will not be lit. When the SS is in an alarm condition, the SS LED will flash.

Power Failure input:
Connect a user supplied 6 to 12 volts DC coaxial (2.1mm/ID, 5.5mm/OD, center positive) power source to the power failure input connector labeled PF. An inexpensive 6 to 12 volt DC wall transformer of any
current of 50mA or more will do. NOTE: The primary (120 VAC) of the wall transformer should be connected to the utility company side of your service. An UPS is suggested to power the VAD-4 during power outages.

Temperature Probe inputs:
Insert the optional temperature probes (25 foot cable) stereo mini (3.5mm) plug in to either or both of the rear panel jacks labeled "TEMP" 1 – 2 (-40°F to +190°F/ -40°C to +85°C). Extension cables may be used if more reach is needed. It is recommended that you limit the total length of each cable to 50 feet.

NOTE: Probes should only be installed or removed when power is disconnected from the VAD-4.

Telephone "CALLER" line output:
Balanced CALLER telephone line audio output is available between the CLR- and CLR+ terminals. For unbalanced loads, use the "CLR +" and GND terminals only. **Do not connect the "CLR -" terminal to ground. Shields should be tied to the "Chs Gnd" terminal.**

PWR (Power):
The 12 VDC wall power supply is connected to the 2.1mm coaxial connector.

Telephone Line RJ-11 Jack:
Connect your central office "Loop Start" ONLY POTS line here. **This line SHOULD be equipped with CPC (Calling Party Control, WINK or COD) to function properly.**

Mounting:
The VAD-4 may be set on a desktop, mounted on a wall or as part of a RA-1 mounting shelf. Up to three units may be installed on one RA-1 rack shelf kit (filler panel is provided).

Jumper Settings
JP3: DTMF Tone detection jumper (Guard time)
The VAD-4 is equipped with a 4-position jumper, labeled "JP3" on its PCB. This is used to adjust how quickly DTMF tones are detected. The settings are as follows:

F = Fast, 50ms ON / 50ms OFF (default)
M = Medium, 100ms ON / 100ms OFF
S = Slow, 150ms ON / 150ms OFF.

Dip-switch setup
Some configuration settings on the VAD must be set via the 8-position dip-switch package on the VAD's printed circuit board. Please refer to the appendix for more information.

DIP 1 - OFF = Normal operation / ON = BOTT mode.
For use with the BOTT Radio Network Only.

DIP 2 – OFF = Degrees Fahrenheit / ON = Degrees Celsius
(for polling only, alarms set separately.)

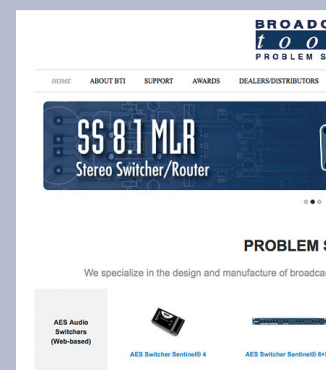DIP 3 – ON = K5 relay closes on all alarms. (Alarm tally)

DIP 4 – 7 = Not used.

DIP 8 – OFF = Alarms enabled / ON = Alarms disabled

All dip-switches are set in the off position at the factory.

INSTALLATION

PROGRAMMING

Restoring to factory defaults:

If you wish to return the VAD to its factory default settings: remove power from the VAD. Hold in the recessed defaults button on the left side of the VAD-4's front panel. Plug in the power and then release the defaults button a second or two later. When you release the defaults button the PGM LED will flash to indicate a successful reset.

NOTE: Voice recordings are not reset.

Programming via the front panel USB Serial "PGM" port.

1.) Connect the supplied USB A/B cable from the "USB PGM" jack on the VAD-4 front panel to an available USB port on your PC. When you first plug the VAD-4 into your PC, it should automatically install the correct FTDI USB Serial "Virtual COM port" drivers which will allow you to access the VAD-4 on a COM port.

   NOTE: If the VAD-4's FTDI USB Serial "Virtual COM port" drivers do not automatically   install   they   may   be   downloaded   here: http://www.ftdichip.com/Drivers/VCP.htm

2.) Start a serial terminal application like PuTTY, Tera Term or HyperTerminal configured for: 9600,8,N, 1, flow control to NONE, Emulation set to ANSI, and local character echo enabled.

   NOTE: Step by step "COM" port HyperTerminal setup instructions are available on-line at www.broadcasttools.com under "Downloads".

3.) To begin programming press the front panel "PGM" button or type "P" into the serial console. The front panel "PGM" LED will illuminate, while the program menu will be displayed in your serial terminal application:

```
VAD-4 PGM MENU v1.08
1 - DIAL-OUT NUMBERS
2 - DIAL-OUT LIST
3 - SETTINGS
4 - PAGER NUMBER AND DATA
5 - TEMP ALARM SETTINGS
6 - STAT NO/NC
7 - ENABLE/DISABLE ALARMS
ENTER 1-6:
```
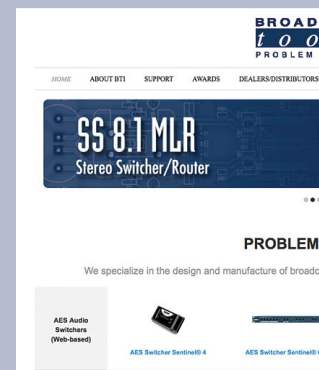
Menu navigation:

Type the number of the menu item you wish to view/edit a menu item, afterwards you can press escape (ESC) to jump back to the previous menu selection. If escape is pressed from the PGM Menu, program mode will be exited.

Dial-Out Numbers

When (1) is selected from the PGM Menu, the Dial-Out Numbers list will be displayed. The Dial-Out Numbers are the phone numbers that can be dialed when alarms are generated. Up to 32 digits can be used in each phone number along with a comma (,) for one second and a semi-colon (;) for 5 second pauses.

```
DIAL OUT NBRS:
1-3608549559
2-
3-
4-
ENTER 1-4:
```

Dial-Out List Menu

When (2) is selected from the PGM Menu, the Dial-Out List is displayed. This is where you determine what combination of numbers are dialed for a selected input alarm. Each input channel can be edited individually using the following: 1-4 is used for Status Input Alarms (ST) 1-4, S for Silence Sensor Alarm (SS), P for Power Fail Alarm (PF) and T for Temperature Alarm (TA).

Example: To configure the Status Input 1 alarm to call dial-out phone number 1, followed by dial-out phone number 2 you would type first type "1" to start editing the dial list for status 1 and then type "12" followed by a carriage return to add dial-out numbers 1 and 2 and finish editing the status 1 dial list.

```
ST DIAL LIST:
1-12
2-12345
3-21
4-5

PF, SS AND TEMP DIAL LIST:
PF-1234
SS-2
TA-1
ENTER 1-4 FOR STATUS INPUTS, P FOR PF, S FOR SS, T FOR TEMP
ALARM:

THEN DIAL-OUT NBRS 1-4 OR 5 FOR PAGE
```
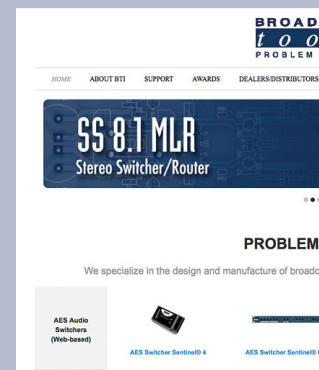
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Settings Menu

When (3) is selected from the PGM Menu, the Settings menu is displayed. This is where you can edit the VAD-4's Access Code, Lap number, Ring count, Repeat count, Silence Sensor Alarm delay time, Power Failure alarm delay time, and Hang-up time.

```
1-ACS CODE, 2-LAP, 3-RING, 4-RPT, 5-SILENCE, 6-PF, 7-HU


1-321
2-2
3-2
4-3
5-1
6-3
7-2
ENTER 1-7:
```

1: Access Code (ACS Code)

The Access code is the code the user must enter via the telephone in-order to use the VAD-4's control functions. Please refer to the Control Codes section of this manual for more information about controlling the VAD. The access code can be up to 15 digits long.
Default value: 123

2: Lap Number

The Lap number is the number of times the VAD-4 will go through all of the numbers an input's dial-out list when an alarm is triggered and no acknowledgement of the alarm is received.
Default value: 2
NOTE: Alarms are acknowledged by pushing the star (*) key when an alarm is called out.

3: Ring Count

The ring count defines the number of rings required before the VAD-4 answers an incoming phone call. Enter 0 to disable the automatic answer feature or 1-9 for the desired number of rings.
Default value: 2

4: Repeat Count (RPT)

The repeat count is the number of times the alarm voice message will be repeated when the alarm is called out. Since there is no way of knowing when the remote party answers the phone line, the VAD-4 will start playing the alarm message a few seconds after dialing for the "Repeat Count" number of times. When an alarm call is answered, you may pick up the phone in the middle of an announcement or there may be a few seconds of silence before the start of the message. Once the star (*) is entered to acknowledge the alarm, it will stop playing the message. You can then enter your access code and perform control functions or polling.
Default value: 3

5: Silence Sensor Alarm delay time

The silence sensor alarm delay time must be set before the VAD-4 will generate any silence alarm phone calls. In-order for a silence alarm to be triggered the silence sensor audio must remain below threshold for the delay time period.
The delay time is programmed with a value of 0-9 with 0 being OFF and 1-9 with values are as follows: 1 = 10 sec, 2 = 30 sec, 3 = 60 sec, 4 = 1.5 min, 5 = 2.0 min, 6 = 2.5 min, 7 = 3 min, 8 = 4.0 min and 9 = 5.0 min.
Default value: 2 (30 seconds)

6: Power Fail Alarm delay time
The power fail alarm delay time must be set before the VAD-4 will generate any power fail alarm phone calls. In-order for a power fail alarm to be triggered the power fail input must remain inactive for the delay time period. The delay time is programmed in 10 second values. For example, 2 = 20 seconds of power failure before an alarm, 9 = 90 seconds. If it is set to "0", the alarm will be turned off and will not call out.
Default value: 2 (20 seconds)

7: Hang-up time (HU)
The hang-up time value refers to the number of minutes the VAD-4 will remain off-hook after answering a call before hanging up automatically. Normally the VAD will hang-up when a CPC signal is received from the Central Office to signal it to hang so if you are connected to a standard phone line with CPC you can set the hang-up time value to 0, and the VAD will remain off-hook until the CPC signal is received.

If the VAD is connected on the other side of a PBX system that does not pass the CPC signal, then a hang-up time value of 1-9 minutes should be set to keep the VAD from remaining off hook and causing the line to be indefinitely busy. The hang-up timer is reset each time a valid DTMF tone decoded. Once there is no more activity, the VAD-4 will hang-up after the hang-up time has elapsed.
Default value: 2

Pager Number and Data String Menu
When (4) is selected from the PGM Menu, the pager number and pager data can be entered. The pager number can be assigned to an alarm by entering a "5" in the dial-list.

```
1-PAGER NBR, 2-PAGER DATA

1-3608549559
2-917
ENTER 1-2:
```

Temperature Alarm Settings Menu
When (5) is selected from the PGM Menu, the high and low temperature alarm thresholds may be set each temperature probe input. Type 1 to set the alarm thresholds for temperature probe input 1 or type 2 to set the alarm thresholds for temperature probe input 2. Each high/low threshold entry is a four-digit number with the first digit being the F or C designator. If the first digit is a "0" then Fahrenheit is used. If the first digit is a "1" then Celsius is used. The designator is followed by the desired three digit alarm threshold temperature value. 90 degrees Fahrenheit would be entered as: 0090 while 32 degrees Celsius would be entered as 1032.
NOTE: Negative temperature settings are not available with this version of firmware.

```
CURRENT TEMP SETTINGS:
1-0032/0100
2-0032/0100
ENTER 1 OR 2 FOLLOWED BY TEMP LO/HI: DEG F=0XXX, DEG C=1XXX
```

Example: To enter low and high alarm set points of 30F and 95F for temperature probe input 1, enter 1 followed by 0030/0095. To enter low and high alarm set points of 10C and 40C enter 1010/1040 instead. Do not type the "/", it will be entered automatically.

Status Setup Menu (STAT NO/NC)

When (6) is selected from the PGM Menu, the Status inputs can be set for either Normally Open (NO) or Normally Closed (NC) operation. By default the status inputs are configured for normally open operation. In normally open configuration when an input becomes active it is considered to be in an alarm state. In normally closed configuration when an input becomes inactive it is considered to be in an alarm state.

```
CURRENT SETTINGS, 0=NO, 1=NC:
0000
ENTER 0 FOR NO, 1 FOR NC CH 1-4:
```

Example: All four status inputs are set in succession, so to set inputs 1 and 4 to NO and 2 and 3 to NC you would enter: 0110

Enable/Disable Alarms

When (7) is selected from the PGM Menu, the input alarms may be individually enabled or disabled. By default status inputs 1-4 are the only alarms enabled. 1=enabled, 0=disabled.

Example: To enable the silence sensor alarm, type 5 to select the silence sensor (SIL) followed by 1 to enable the alarm.

```
ALARM EN/DIS 1=IN1, 2=IN2, 3=IN3, 4=IN4, 5=SIL, 6=PF,
7=TEMP1, 8=TEMP2
0=DISABLED, 1=ENABLED

1-1
2-1
3-1
4-1
5-0
6-0
7-0
8-0
```

Recording Voice Messages

Custom voice messages may be recorded over the messages that ship with the VAD-4. A standard touchtone phone is used to record new voice messages.
  1.) Plug a touchtone phone in to the front panel "Voice Record Phone" jack on the front of the VAD.
  2.) Press the front panel "PGM" button and make sure that the PGM LED is lit indicating PGM mode is active.
  3.) To record a voice message dial the 2 digit address of the voice message to be recorded. The PWR led will turn off during record. Speak the new message into the programming phone. When done, press the PGM button again or wait for the time-out.

Enter a "*" prior to the code to play the existing message and not record over it.

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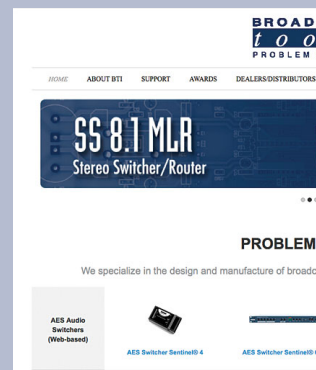
Message	Address	Time
0	50	2.5
1	51	2.5
2	52	2.5
3	53	2.5
4	54	2.5
5	55	2.5
6	56	2.5
7	57	2.5
8	58	2.5
9	59	2.5
Temperature	60	2.5
Degrees Celsius	61	2.5
Degrees Fahrenheit	62	2.5
Input1 Description	63	10
Input 2 Description	64	10
Silence Description	65	10
Power Description	66	10
Temp Alarm Desc.	67	10
Greeting Message	68	10
Call out ID	69	10
On	70	2.5
Off	71	2.5
Enabled	72	2.5
Disabled	73	2.5
Relay 1	74	5
Relay 2	75	5
Access Accepted	77	5
Minus	78	2.5
Input 3 Description	80	10
Input 4 Description	81	10
Relay 3	82	5
Relay 4	83	5
Relay 5	84	5

The "Call out ID" message is used to identify the source of an alarm call-out, for example, WXYZ will be played prior to "Input 1 Alarm".

OPERATION

Alarms:

When any of the eight inputs (status input one, status input two, status input three, status input four, silence sensor, temperature sensor one and/or two or power failure), are enabled and have been triggered, the VAD-4 will begin dialing the first telephone number programmed for that input.

Five seconds after dialing the telephone number, the VAD-4 will speak the Call-out ID message used to identify the source of the call, the VAD-4 will then speak a unique message for the triggered alarm input. Each message comes factory programmed, but may easily be re-recorded locally with your own customized messages. The message will be repeated for the number times stored in the "repeat" count location. If there isn't a user entered (*)(asterisk) alarm acknowledgment, the VAD-4 will go on to the next number and so on until all numbers stored in the alarming input's dial list have been called. This process will then be repeated for the number of times stored in the "lap" memory. The lap and repeat memories are global for ALL alarms.

If another alarm is generated while the VAD-4 is off hook, the VAD-4 will wait until the current session is finished, disconnect, and then dial-out with the new alarm. The call will be disconnected after the calling party hangs up and the CPC (wink) is received from the central office or will hang up after pre-programmed minutes of inactivity.

After reporting an alarm, the VAD-4 is ready to receive commands once the security (un-lock) code is entered through your telephone's keypad. Functions include telling the VAD-4 to report on the input state of any of the eight inputs, commanding the VAD-4 to pulse any one of its 4 SPDT relays for 1 second and/or turning any one of the relays on or off. When a relay command is given, the VAD-4 will speak the condition of the relay.

Incoming calls:

In addition to initiating a call out when any input changes, the VAD-4 monitors its telephone line to receive a call-in from a remote location. When a call is received, the VAD-4 will pick-up and speak the greeting message, it is then ready to receive the security (un-lock) code and execute commands to report on inputs, control the four relays, or listen to the silence sensor audio input.

WEBSITE:
Visit our web site for product updates and additional information.

e-mail: support@broadcasttools.com   voice: 360.854.9559   fax: 866.783.1742
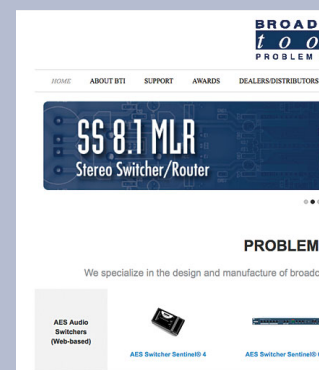
Control Codes
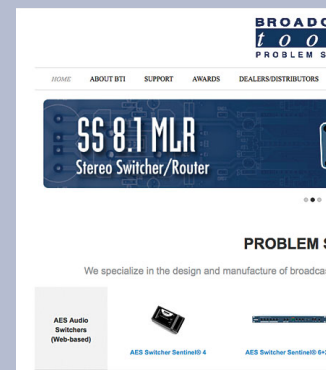
All Control codes are two digits long and can be used to control the VAD-4 after it has received its un-lock code.

Code:	Function:
03	Caller out Audio on
04	Caller out Audio off
07	SS Audio on
08	SS Audio off
11	Enable Input 1 alarm
12	Disable Input 1 alarm
13	Poll Input 1 Enable status
17	Poll Input 1 State status
18	Poll Relay 1
19	Steady Relay output (as long as DTMF received)
10	Relay 1 – 1 second pulse
1*	Relay 1 latched
1#	Relay 1 un-latched
21	Enable Input 2 alarm
22	Disable Input 2 alarm
23	Poll Input 2 Enable Status
27	Poll Input 2 State Status
28	Poll Relay 2
29	Steady Relay output (as long as DTMF received)
20	Relay 2 – 1 second pulse
2*	Relay 2 latched
2#	Relay 2 un-latched
31	Enable Input 3 alarm
32	Disable Input 3 alarm
33	Poll Input 3 Enable Status
37	Poll Input 3 State Status
38	Poll Relay 3
39	Steady Relay output (as long as DTMF received)
30	Relay 3 – 1 second pulse
3*	Relay 3 latched
3#	Relay 3 un-latched
41	Enable Input 4 alarm
42	Disable Input 4 alarm
43	Poll Input 4 Enable Status
47	Poll Input 4 State Status
48	Poll Relay 4
49	Steady Relay output (as long as DTMF received)

OPERATION

Code:	Function:
40	Relay 4 – 1 second pulse
4*	Relay 4 latched
4#	Relay 4 un-latched
61	Enable Silence Alarm
62	Disable Silence Alarm
63	Poll Enable State of Silence Alarm
67	Poll Silence Alarm Input
71	Enable Power Fail Alarm
72	Disable Power Fail Alarm
73	Poll Enable State of Power Fail Alarm
77	Poll Power Fail Alarm
81	Enable Temperature Input 1 Alarm
82	Disable Temperature Input 1 Alarm
83	Poll Enable State of Temperature Input 1 Alarm
84	Poll Current Temperature 1
85	Enable Temperature Input 2 Alarm
86	Disable Temperature Input 2 Alarm
87	Poll Enable State of Temperature Input 2 Alarm
88	Poll Current Temperature 2
90	Plays Firmware Version number
99	Force Hang up

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OPERATION

17
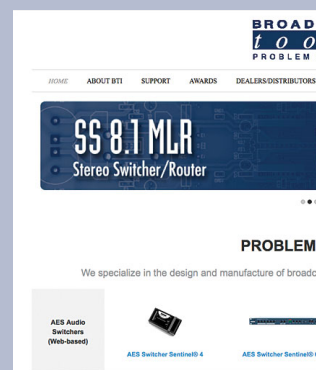
SPECIFICATIONS

Control Logic: Flash Microprocessor with non-volatile memory

Relays   Four user-controllable, one alarm tally- SPDT Contacts, 30 VDC @ 1 Amp maximum.

CAUTION! For safety, never connect 120 Vac circuits to these relays!

Status Inputs: Four optically Isolated, RFI protection. Internal jumper for (wet) external 5 to 24 VDC (higher voltages with external resistor) or internal 5 VDC source (dry). Open collector, contact closures to ground or external source.

Power Failure Input: 6 to 12 volts at 50ma DC coaxial (2.1mm/ID, 5.5mm/OD, center positive) power source (user supplied).

Temperature Sensor Inputs: Two sensor inputs. Sensors with 25-foot cables and 3.5mm T/R/S plugs optional. -40°F to +190°F (-40°C to +85°C)

Stereo Silence Sensor: Stereo unbalanced 10K ohm inputs. Trip level -25dBu. Silence sensor level to Telco adjustable.

Balanced caller audio output: 0 dbu @ 100 ohms. Gain resistor (R31) may be changed to increase the output level.

Telephone Line Connector: RJ-11. Cable supplied. Fused and surge protected

Voice Record Phone Connector: RJ-11. Talk battery provided.

Connectors: Plug-in euroblock screw terminals for status inputs, relays, balanced telco audio output and stereo unbalanced silence sensor inputs.

Power: 12 VDC @ 500ma. 2.1mm coaxial jack. Surge protected universal input wall transformer supplied. Optional international power plugs.

Size: 5.66" x 7.00" x 1.58", Painted aluminum chassis w/ 4 - 4-40
mounting holes.

Weight: 2.0 lb.

Options: RA-1, Rack Shelf. 1 RU. (Holds THREE VAD-4's). Temperature Sensor.

WEBSITE:
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SPECIFICATIONS

LIMITED WARRANTY

The term "Buyer" as used in this document refers to and includes both (but only) (a) any person or entity who acquires such an item for the purpose of resale to others (i.e., a dealer or distributor of an item), and (b) the first person or entity who acquires such an item for such person's or entity's own use.

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If Broadcast Tools is notified, in writing, of a failure of any item manufactured by Broadcast Tools to conform to the foregoing Limited Warranty within one (1) year following the date of the Buyer's acquisition of the item, and if the item is returned to Broadcast Tools in accordance with Broadcast Tools' instructions for confirmation by inspection of the defect (which at Broadcast Tools' election may include, without limitation, a requirement that the Buyer first obtain a Return Authorization number from Broadcast Tools, that the Buyer furnish proof of purchase in the form of an invoice and/or receipt, and that the Buyer prepay all freight charges associated with any return of the item to Broadcast Tools using such freight service as Broadcast Tools reasonably may specify), Broadcast Tools will repair or replace the defective item, or will refund the purchase price paid by the Buyer for the item. Broadcast Tools shall have the exclusive right to choose between these alternative remedies.

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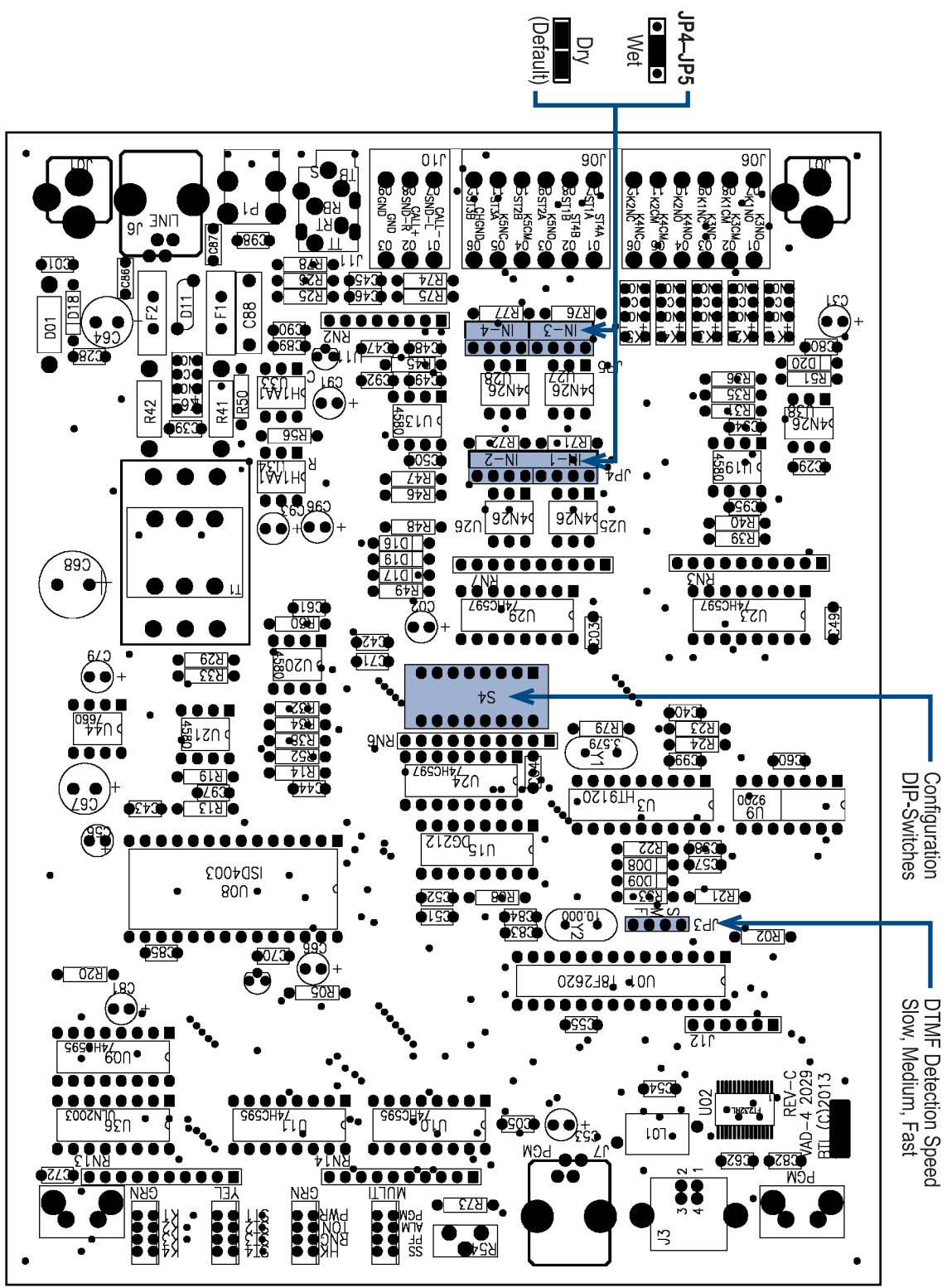
Broadcast Tools, Inc.
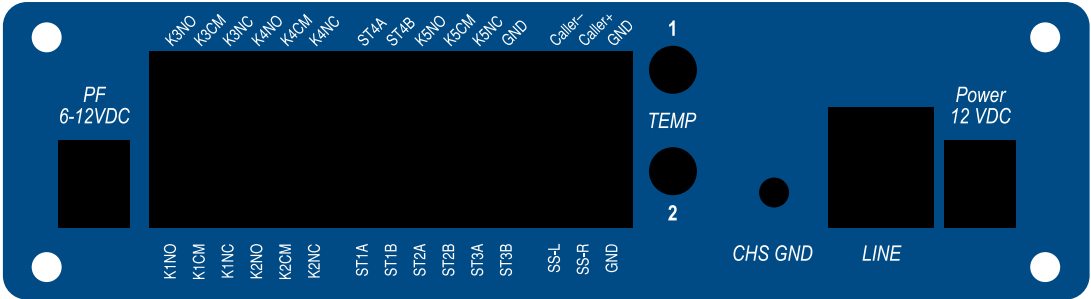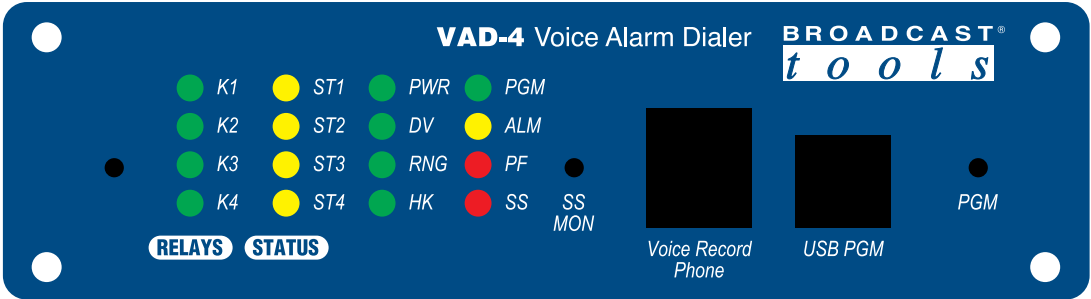131 State Street
Sedro-Woolley, WA 98284 • USA

360.854.9559 **voice** • 866.783.1742 **fax**
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www.broadcasttools.com **website**

Broadcast Tools® VAD-4
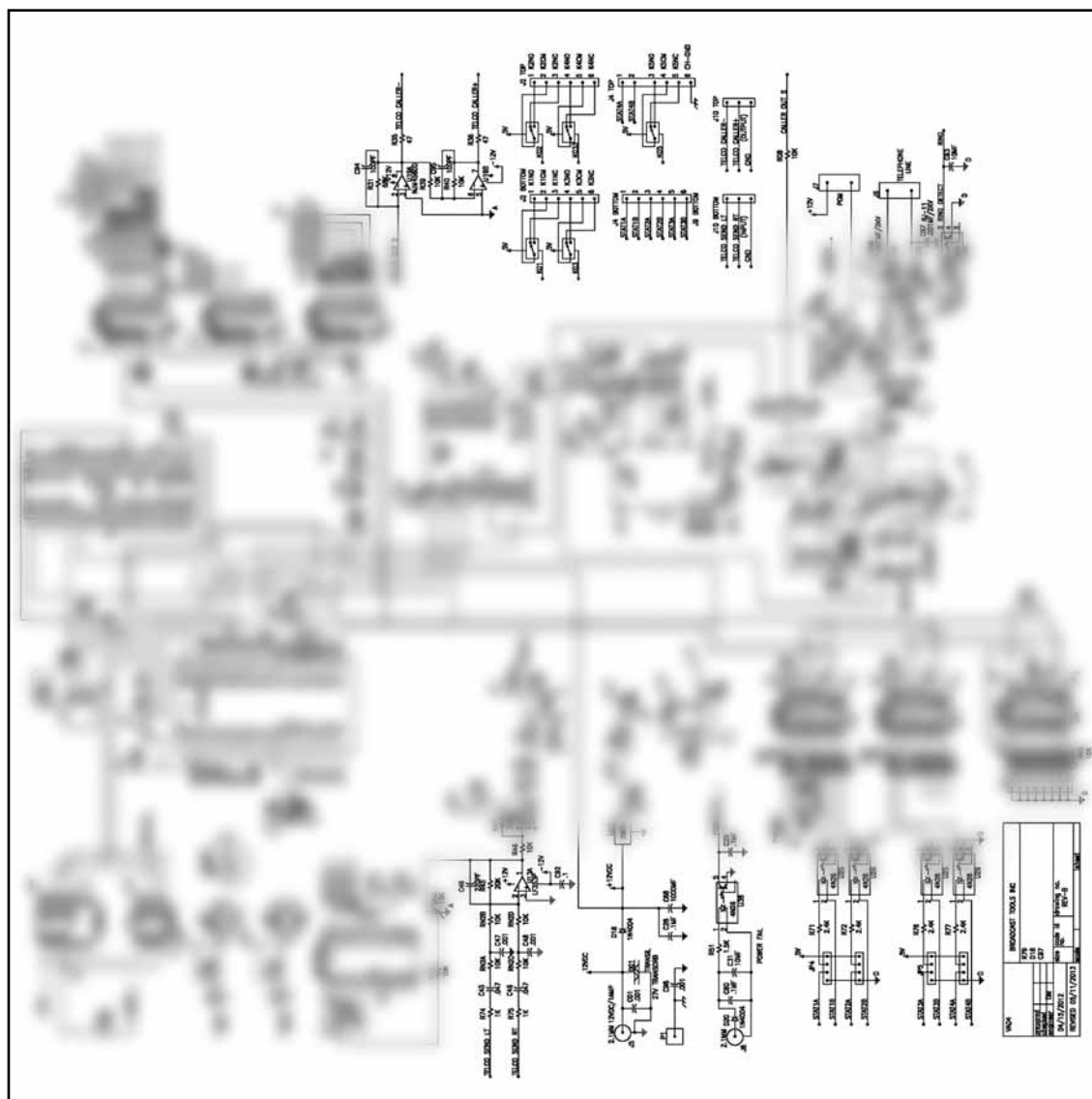Jumper and Connection Layout

JP4-JP5
Wet
Dry
(Default)

Configuration
DIP-Switches

DTMF Detection Speed
Slow, Medium, Fast

Front and Rear Panel Silkscreen Views

VAD-4 Voice Alarm Dialer

BROADCAST® tools

K1 ST1 PWR PGM
K2 ST2 DV ALM
K3 ST3 RNG PF
K4 ST4 HK SS

SS MON

RELAYS STATUS

Voice Record Phone

USB PGM

PGM

PF 6-12VDC

K3NO K3CM K3NC K4NO K4CM K4NC ST4A ST4B K5NO K5CM K5NC GND Caller– Caller+ GND

K1NO K1CM K1NC K2NO K2CM K2NC ST1A ST1B ST2A ST2B ST3A ST3B SS-L SS-R GND

1

TEMP

2

CHS GND LINE

Power 12 VDC

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t o o l s

VAD-4
Four Input Voice Dialer with Silence Sensor, Temp & Relay Control

Fractional Schematic

Power 12VDC
CHS GND
Power Failure

APPENDIX

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Modification date: 09/13/13