

VRX Company Inc.

Application Note: ALARM2TEXT©

The VR2004 Text Inserter with ALARM2TEXT© software.



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Table of Contents

Abbreviations and Phrases.....	2
Summary.....	3
Electrical Connections.....	3
 Alarm Input Connections.....	4
 Alarm Output Connections.....	4
 Alarm Messages.....	5
Having trouble?.....	5

Abbreviations and Phrases

CAT5 or CAT6	Short for Catalog 5 or 6 cable. Constructed as a twisted pairs of wires which are combined into four groups in a common jacket. This cable is inexpensive and allows high speed data transmission. It can be used for low speed, even DC applications such as alarm wire. CAT5 cables are easy to fabricate to length and install at a job site with RJ45 terminations.
DB25	The connector with a “D” shaped metal shell containing 25 pins. On most IBM PCs the parallel port is a DB25. Older computers systems and even modern serial printers use the DB25 for serial connection per the specification RS232/EIA232.
EIA568B	A common wiring standard for CAT5 cables.
Parallel In and Parallel Out	Two connectors through which the alarm in and alarm out signals connect.
RJ45 or Modular Jacks	A jack similar to modular telephone jacks but having up to 8 contact positions. This jack is often used with CAT5 or similar cable for networking applications. The RJ45 terminations are made with inexpensive hand tools (starting at about \$20.00 as of 2009). A jack with 8 positions and 6 conductors is described as 8P6C.
TTL Level	Transistor to Transistor Logic, aka logic level. An engineering term describing the 0 to 5 volt electrical signals found on many electronic digital circuits. Logical 0 is a low voltage and logical 1 is a high voltage.

Table 1 Abbreviations used in this application note

Summary

This document shows how to use install and use the ALARM2TEXT© model of the VR2004 Text Inserter.

The ALARM2TEXT model features four electrical alarm inputs and two electrical alarm outputs in addition to video input and video output.

When the Text Inserter is triggered into the alarm condition, a test string is inserted into a predefined location corresponding to each alarm input. Multiple alarm conditions can be indicated by the text. The text persists as long as the alarm condition persists except for the last alarm to clear, which is held for an additional time such as 10 seconds. This gives visibility to intermittent alarm events to help trouble shoot bad circuits.

IMPORTANT:This note is written for the version “V1.25 ALARM2TEXT” software.

Electrical Connections

Connect the VR2004 Video Output to a monitor such as through a DVR.

Connect a camera to the VR2004 Video Input if you want to overlay text on camera video. This is optional. Text will be on a black field if no video is input to the VR2004.

Alarm connections to the VR2004 is through two DB25 to RJ45 adapters wired for easy connection to switches and alarm inputs on common DVRs. Use CAT 5 cables wired in accordance with EAI568B.



The DB25_RJ45 ALARM_IN connects to the VR2004 Parallel Input port.

The DB25_RJ45 ALARM_OUT connects to the VR2004 Parallel Output port.

Connect switches with CAT 5 to the ALARM_IN. The switches must close to indicate the alarm condition.

Connect the VR2004 ALARM_OUT to a DVR alarm input again using CAT 5 cable. Use the color coding information in the section which follows.

Apply power to the VR2004 and watch the monitor. You will see a short “Splash Screen” with the message “VR2004 OK” or similar. Power is from a DC wall transformer rated 9-12 volts at 200 mA or +5Volt USB.

Alarm Input Connections

For the four alarm inputs, the ALARM_IN adapters was build so that on the CAT 5 cable all the wires with two colors, IE White and Blue are ground. The corresponding solid color wire is an input. The inputs 1 through 4 correspond to colors taken alphabetically {Blue, Brown, Green and Orange}.

All inputs have a 4.7 K pull up to 5 volts. The alarm condition is asserted when the input is driven low by an external switch.. This would occur when the input wire and the corresponding ground are connected to a switch which closes to indicate the alarm condition.

DB25 Pins	Function	EIA568B
1	nAlarm 1	Blue
14	nAlarm 2	Brown
16	nAlarm 3	Green
17	nAlarm 4	Orange
22	GND	Blue white
23	GND	Brown white
24	GND	Green White
25	GND	Orange White

Alarm Output Connections

For the two alarm outputs the ALARM_OUT adapter was build so that on the CAT 5 cable all the wires with two colors, IE white/blue are ground.

Alarm outputs are an open drain switch and are typically connected to a DVR input which has a pull up resistor to 5 volts.

The two outputs are nALARM_ALL and nALARM_ALL_Persistent.

When an alarm events occurs on any input, the nALARM_ALL goes low for a short time (about ½ second). It then returns high. If another alarm input event occurs the signal goes low again.

When an alarm events occurs on any input, the nALARM_ALL_Persistent goes low and remains low while any alarm condition persists.

The signals nAlarm_1 and nAlarm_2 are reserved for future use and as of V1.25 software have no function.

DB25 Pins	Function	EIA568B
6	nAlarm 1	Blue
7	nAlarm 2	Brown
8	nALARM ALL Persistent	Green
12	nALARM ALL	Orange
22	GND	Blue white
23	GND	Brown white
24	GND	Green White
25	GND	Orange White

Alarm Messages

The text messages are programmed by the factory.

The Text Inserter has a maximum of 24 characters to a line. The messages 1 and 2 write on one line and the messages 3 and 4 write on the line below. The length of each message is less than or equal to 12 characters.

Table of example messages

Message	Function	EIA568B
Booster	nAlarm 1	Blue
Jammer	nAlarm 2	Brown
EAS	nAlarm 3	Green
Magnet	nAlarm 4	Orange
GND	GND	Blue white
GND	GND	Brown white
GND	GND	Green White
GND	GND	Orange White

The first line of inserted text is displaced down by one line to prevent overwriting any text inserted by a DVR such as camera name.

Image of video with four inserted messages.



Having trouble?

If you are having compatibility trouble with the Text Inserter, please look for updated information on our web site at www.vrxinc.com

Contact the VRX Company Inc at support@vrxinc.com or by calling 1-865-543-8398.
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