

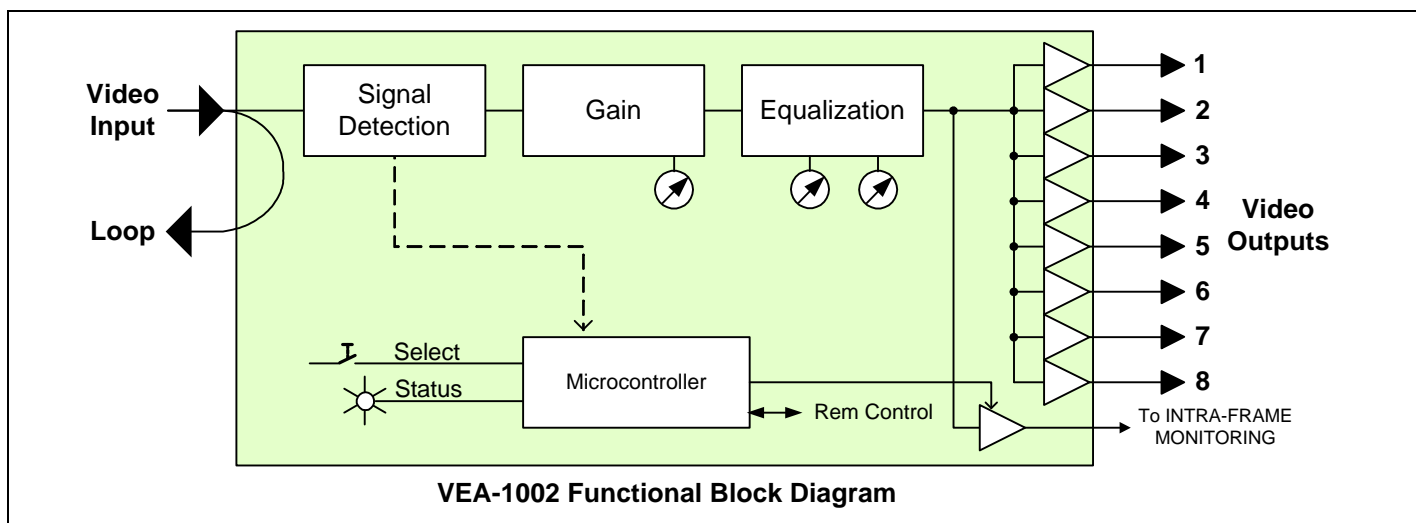
VEA-1002

Introduction

The VEA-1002 is an analog video distribution amplifier with 8 outputs, providing equalization and differential input. The VEA-1002 will equalize up to 300m (1000') of Belden 8281 cable. Gain and equalization can be controlled from the card edge. A clamping circuit is provided and can be set for hard or soft clamping. An input video signal status is also available indicating the input signal presence. The differential input provides rejection of hum and other artifacts on incoming signals. The VEA-1002 is housed in a Densité frame and a 'single' or 'double' rear connector panel is required.

Features

- Differential 75 Ω looping input with Clamping
- Eight (8) 75 Ω outputs
- Signal presence and 525/625 detection and reporting
- Supports NTSC and PAL video signal formats
- 50 MHz analog video bandwidth
- Equalization up to 300m (1000')
- Status LED (with remote reporting)
- Control of gain and equalization on the card edge
- Intra frame output for monitoring



Specifications

INPUT

Video signal:Any 1 Vp-p nominal signal
Return loss:> 45 dB up to 10 MHz
Coupling:DC or AC with Clamping
(Hard/Soft/None)
Level:0.3 to 1.5 Vp-p
Impedance:75 Ω Bridging
Max. common mode signal :..... 28 Vp-p
Common mode rejection:> 65 dB to 10 kHz

OUTPUTS (8)

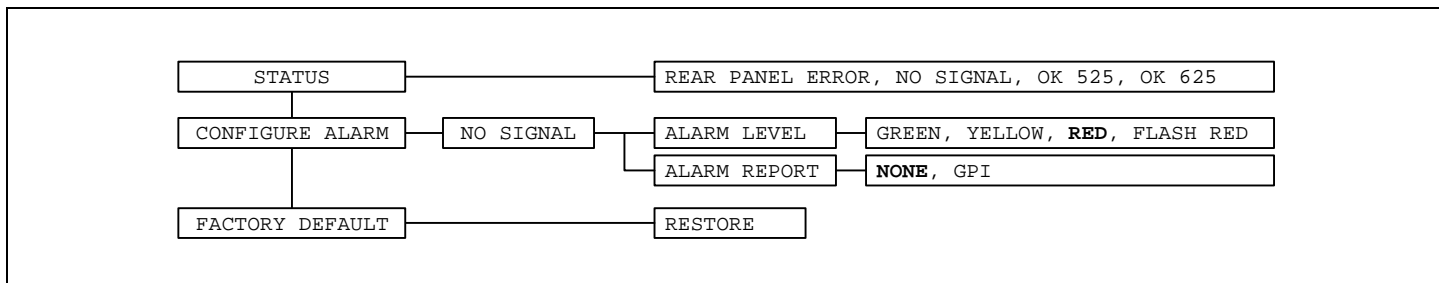
Video signal:1 Vp-p nominal, adjustable
Return loss:> 45 dB up to 20 MHz
Impedance:75 Ω
Phase match between outputs: < 0.1° @ 4.43 MHz
Output isolation signal:> 40 dB @ 10 MHz
Response variation:.....< 0.1 dB, 1 to 8 loads, to 20 MHz

PROCESSING PERFORMANCE

Gain range: \pm 3 dB?
Freq. response:< \pm 0.05dB up to 10MHz,
.....-3dB @ 50MHz
EQ range:.....0-300 m Belden 8281,
.....0-200 m Nokia 0.6/2.8
EQ response:< \pm 0.05dB up to 8MHz,
..... \pm 0.1dB up to 10MHz,
.....-3 dB @ 28 MHz
Differential gain:< 0.15%
Differential phase:< 0.15° at 8 loads,
.....< 0.1° at 2 loads
Horizontal tilt:< 0.25%, DC coupling
Vertical tilt:< 0.25%, DC coupling
Signal to noise ratio:.....> 70 dB up to 15 MHz
.....(rms noise/0.714 V, unweighted)
Chroma/luma delay error: ...< \pm 7 ns
Chroma/luma gain error:< \pm 0.02 dB
Hum:< 1 mV
Processing delay :.....15 ns
Power:.....single 2 W
.....Double 2.5 W

Menu Introduction

Most parameters are accessed and changed via an easy-to-use menu. The flow chart below outlines the entire VEA-1002 menu path. Each menu is described throughout this section. The procedure and the operation mode are described in the common paragraph of the DENSITÉ manual. The menu organisation is made out of a main menu and several sub-menus. A press on the [SELECT] front panel push button of the VEA-1002 accesses the menu. A lack of activity turns off the display. Default values are written with bold characters.



Menu Description

{STATUS}

Displays status of the different board alarms. The higher-level alarm is displayed, even if not configured to activate the *STATUS* led.

REAR PANEL ERROR	Indicates an absence of the rear panel or an incompatibility between the module and the rear panel. The <i>STATUS</i> led turns on flashing red.
OK 525	Indicates a valid 525 lines incoming signal
OK 625	Indicates a valid 625 lines incoming signal
NO SIGNAL	Indicates an absence of input signal

{CONFIGURE ALARM}

NO SIGNAL	It is possible to associate the <i>STATUS</i> Led colour and/or a GPI relay activation to each detected error. Alarm relay activation depends of the ENABLE selection of the controller board menu GPI REPORT.
ALARM LEVEL	Associates to each error the <i>STATUS</i> led colour: GREEN, YELLOW, RED and FLASH RED. This selection has no influence on the {STATUS} menu display.
ALARM REPORT	The default value NONE is assigned to errors. Alarm relay activation will be associated to an error when GPI is set.

{FACTORY DEFAULT}

RESTORE	resets the module with the factory default parameters.
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Status and Report

This table shows the *STATUS* led colour and the report action according to the level of a given error condition. Notice that the "Flashing Yellow" indicates that the SELECT button on the front panel has been pushed, and the card is being accessed via the communication protocol.

Factory default. ⚙

	Non requested Messages	GPI Report	Green	Yellow	Red	Flashing Red	Flashing Yellow
No signal detected on Input	⚙				⚙		-
Card accessed via the communication protocol							Yes
Rear Panel not matching	-	-	-	-	-	Yes	-

Note: The non requested message affectation to an alarm status can only be accessed by the communication protocol (serial port)

Calibration

First-time calibration

To Calibrate the VEA-1002 for your system, you must first select the input cable length. Use jumper LK2.

Needed:

- Signal generator:
- Accurate measuring equipment
- Small flat head screwdriver (potentiometer adjustment).

1. 100% luma adjustment

Generate a test signal with a 100 % luma level.

Using the measuring equipment to visualise the result, slowly turn the "GAIN " potentiometer (P2) situated on the card edge to adjust to obtain the correct level.

Format	100% white level
NTSC with setup	714 mV or 100 IRE
NTSC no setup	714 mV or 100 IRE
PAL	700 mV

NOTE: The output reacts slowly when the potentiometer is turned and it is constantly fluctuating when no turning is done. This is normal. The card is continually comparing the input signal to the potentiometer value.

2. Equalisation adjustment

Generate a 100/75 colour bars signal.

Using the measuring equipment to visualize the result, slowly turn the 'EQ' (P3) potentiometer to adjust the peak-to-peak level of the red bar in the 100/75 colour bars signal at the output of the VEA-1002.

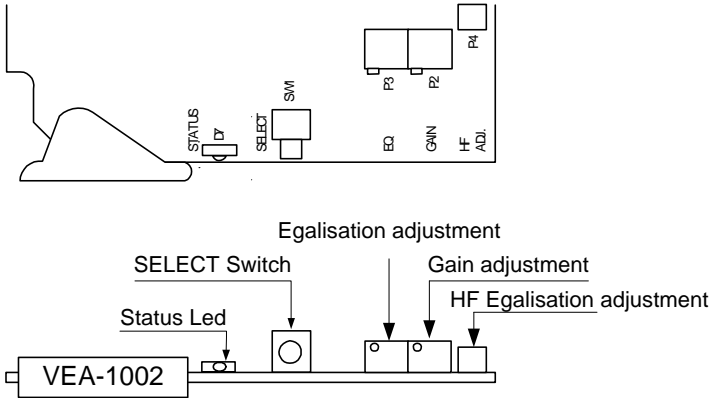
Format	75% p-p red level
NTSC with setup	626 mV or 87.7 IRE
NTSC no setup	677 mV or 94.9 IRE
PAL	664 mV

Another method is to use a vector scope and make all colour vectors converge upon the center of their respective tight tolerance boxes.

Use "HF ADJ" (P4) to fine tune.

Front edge presentation

Board Presentation



Configuration	
GAIN	Trim for gain adjustment.
EQ	Trim for equalization adjustment.
HF ADJ	Trim for HF equalization adjustment
LK1	3-position jumper for clamping configuration. 1-2 None , 3-4 Hard , 5-6 Soft
LK2	3-position jumper for cable length configuration 1-2: 0 – 100 m 3-4: 100 – 250 m 5-6: 250 – 300 m.

Connections

VEA-1002 is used with the single rear panel VEA-1002-SRP that includes 1 input to 4 outputs or with a double rear panel VEA-1002-DRP that includes 1 input with passive loop to 8 outputs. The VEA-1002-SRP-L offers 1 input with passive loop to 3 outputs.

