Application Note AN-01

Model 903 Video Card Settings

Electronics Design Group

FOCAL
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1.0   Introduction

This application note applies to the following Model 903 cards:

ID Codes	Card Part Number	PCB Part Number	Revisions	Description
VIB-TX	903-0014-00	903-0306-00	2, 3	Video Input Card, 4 Channels
VIB-RX	903-0015-00	903-0307-00	2, 3	Video Output Card, 4 Channels

There are slight differences between the jumper settings on different revisions of the Model 903 video cards, as summarized in the following document. Individual video cards may be modified by deviations or waivers, but are typically identified as modified cards in the corresponding 8000 series installation drawings. Cards can be identified by the Printed Circuit Board (PCB) part number and revision, which is silkscreened on the top of each card, e.g. 903-0306-00 for the VIB-TX card. Each video motherboard has a video filter daughtercard installed on top, but these filter cards do not require any configuration jumpers.

2.0   Overview

The VIB-TX (input) and VIB-RX (output) video cards support many jumper configurations for various signal arrangements, including composite video (NTSC/PAL), Y/C video, RGB video, and support for non-video signals on channel 4. The front panel views of the VIB-TX and VIB-RX cards are shown below in Figure 2-1. Channel 1 connectors (SMB type) are located at the top of the panels. I/O cabling should typically be 75-ohm coax.
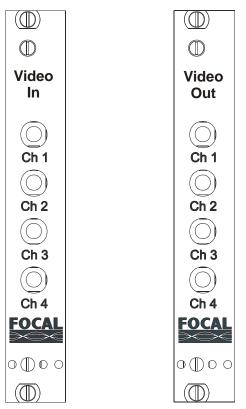

Figure 2-1: Video In (VIB-TX) and Video Out (VIB-RX) Front Panel Views

3.0   General Configuration and Settings

The default configuration for video cards is all composite channels. Any as-built changes should be noted in the 8000 series installation drawings unless changes have been made post-shipment. Spare or otherwise loose cards should be checked for their jumper configuration prior to use.

Valid configurations of the channels are shown in Table 3-1 below. Composite format supports both PAL and NTSC signals. Y/C format supports cameras with separate signals for luma (Y) and chroma (C), where the video sync is located on the Y component. RGB format supports cameras with separate signals for Red (R), Green (G), and Blue (B), with a sync signal required on the Green component. In all cases, the bandwidth of the signals are limited by the video anti-aliasing filters to around 6 MHz. Default input and output impedance on all channels is 75 ohms.

Table 3-1: Video Card Configurations

Channel 1	Channel 2	Channel 3	Channel 4
Composite	Composite	Composite	Composite
C of Y/C #1	Y of Y/C #1	Composite	Composite
Composite	Composite	C of Y/C #2	Y of Y/C #2
C of Y/C #1	Y of Y/C #1	C of Y/C #2	Y of Y/C #2
R of RGB	G of RGB	B of RGB	Composite
Composite	Composite	Composite	Non-Video
C of Y/C #1	Y of Y/C #1	Composite	Non-Video
R of RGB	G of RGB	B of RGB	Non-Video

Channel 4 of the video cards may be configured for generic non-video signals in three general formats: 1.4 Vpp AC-coupled signals, 0 to +5 V DC-coupled signals, and -2.5 to +2.5 V DC-coupled signals. Input impedance on the VIB-TX card (channel 4), available on both revision 2 and 3, should be changed to best match the incoming signal. Output impedance on the revision 2 VIB-RX card is fixed at 75 ohms but can be changed on revision 3 of the revision 3 VIB-RX card to best match the device connected.

Some sonars, e.g. Kongsberg SM 2000, use a "pseudo-video" format that may not work with the composite format settings. In this case, the 1.4 Vpp AC-coupled settings should be used.

The following pages show top views of the VIB-TX and VIB-RX cards with locations of jumper headers and tables indicating jumper settings for the various configurations. The associated tables identify which pins need to be shorted together, e.g. "JP3:1-2" indicates pin 1 of the JP3 header should be shorted to pin 2 of the JP3 header. Note that orientations of adjacent headers no not necessarily match. Always refer to the pin 1 location on the card for each header A spare shunt is normally located at JP17 on each card.

Please contact Focal Technologies if additional assistance with video settings is required.

3.1   VIB-TX Revision 2 Settings

Figure 3-1 shows the location of the jumpers for the VIB-TX card, revision 2, referenced by the tables below.

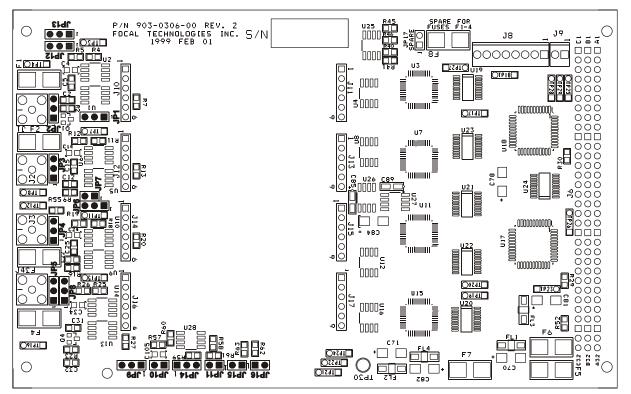Pin 1 of each jumper is identified by a square pad.

Figure 3-1: VIB-TX Revision 2 PCB

Input Impedance (Z)	Channel 1	Channel 2	Channel 3	Channel 4
75 Ohms (Default)	JP2:2-3	JP3:2-3	JP4:2-3	JP5:2-3
150 Ohms	JP2:1-2	JP3:1-2	JP4:1-2	JP5:1-2
High Impedance	Open	Open	Open	Open

Input Format	Channel 1	Channel 2	Channel 3	Channel 4
Composite (Default)	JP1:2-3, JP13:2-3	None Required	JP6:2-3, JP12:2-3	JP8:1-2, JP9:2-3
Y/C (S-video)	JP1:1-2, JP13:1-2	None Required	JP6:1-2, JP12:1-2	JP8:1-2, JP9:2-3
RGB, Sync on G	JP1:1-2, JP13:2-3	None Required	JP6:2-JP7:1, JP12:2-3	Not Applicable

Ch. 4 Non-Video Format	JP8	JP9	JP10	JP11	JP14	JP15	JP16
1.4 Vpp, AC-coupled	2-3	1-2	Open	Open	1-2	Open	Open
0-5 V, DC-coupled	2-3	1-2	1-2	1-2	2-3	1-2	Open
-2.5 to +2.5 V, DC-coupled	2-3	1-2	1-2*	1-2	2-3	Open	1-2

*Shown as "Open" in some manuals, which makes the configuration AC-coupled.

3.2   VIB-TX Revision 3 Settings

Figure 3-2 shows the location of the jumpers for the VIB-TX card, revision 3, referenced by the tables below.

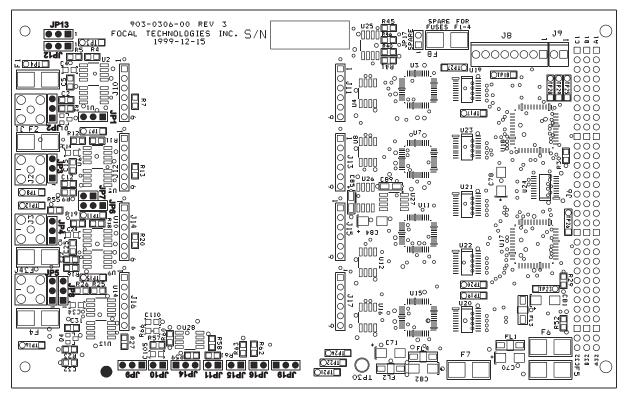Pin 1 of each jumper is identified by a square pad.

Figure 3-2: VIB-TX Revision 3 PCB

Input Impedance (Z)	Channel 1	Channel 2	Channel 3	Channel 4
75 Ohms (Default)	JP2:2-3	JP3:2-3	JP4:2-3	JP5:2-3
150 Ohms	JP2:1-2	JP3:1-2	JP4:1-2	JP5:1-2
High Impedance	Open	Open	Open	Open

Input Format	Channel 1	Channel 2	Channel 3	Channel 4
Composite (Default)	JP1:2-3, JP13:2-3	None Required	JP6:2-3, JP12:2-3	JP8:1-2, JP9:2-3, JP19:2-3
Y/C (S-video)	JP1:1-2, JP13:1-2	None Required	JP6:1-2, JP12:1-2	JP8:1-2, JP9:2-3, JP19:2-3
RGB, Sync on G	JP1:1-2, JP13:2-3	None Required	JP6:2-JP7:1, JP12:2-3	Not Applicable

Ch. 4 Non-Video Format	JP8	JP9	JP10	JP11	JP14	JP15	JP16	JP19
1.4 Vpp, AC-coupled	2-3	1-2	Open	Open	1-2	Open	Open	2-3
0-5 V, DC-coupled	2-3	1-2	1-2	1-2	2-3	1-2	Open	2-3
-2.5 to +2.5 V, DC-coupled	2-3	1-2	1-2	1-2	2-3	Open	1-2	2-3

3.3   VIB-RX Revision 2 Settings

Figure 3-3 shows the location of the jumpers for the VIB-RX card, revision 2, referenced by the tables below.

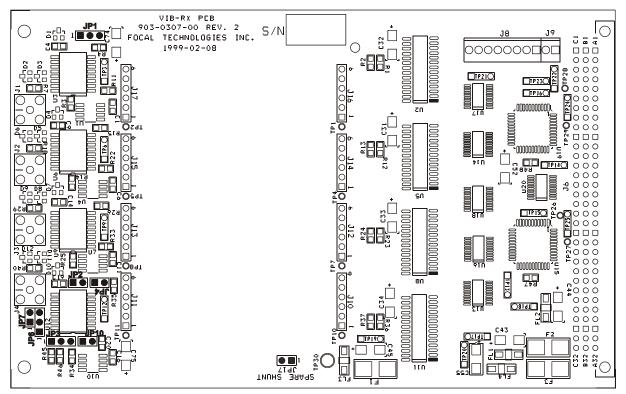Pin 1 of each jumper is identified by a square pad.

Figure 3-3: VIB-RX Revision 2 PCB

Output Format	Channel 1	Channel 2	Channel 3	Channel 4
Composite (Default)	JP1:2-3	None Required	JP6:2-3	JP2:1-2, JP3:2-3, JP4:1-2, JP10:1-2
Y/C (S-video)	JP1:1-2	None Required	JP6:1-2	JP2:1-2, JP3:2-3, JP4:1-2, JP10:1-2
RGB, Sync on G	JP1:1-2	None Required	JP6:2-JP7:1	Not Applicable

Ch. 4 Non-Video Format	JP2	JP3	JP4	JP10
1.4 Vpp, AC-coupled	Open	Open	Open	Open
0-5 V, DC-coupled	Open	1-2	Open	1-2
-2.5 to +2.5 V, DC-coupled	Open	1-2	Open	1-2

Output impedance for Channel 4, non-video mode is fixed at 75 ohms.

3.4 VIB-RX Revision 3 Settings

Figure 3-4 shows the location of the jumpers for the VIB-RX card, revision 3, referenced by the tables below.
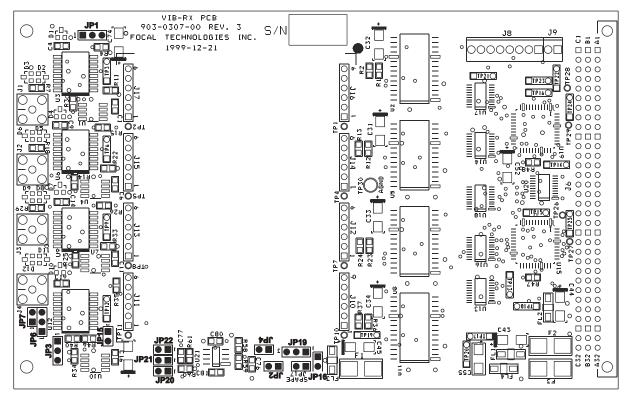
Pin 1 of each jumper is identified by a square pad.

Figure 3-4: VIB-RX Revision 3 PCB

Output Format	Channel 1	Channel 2	Channel 3	Channel 4
Composite (Default)	JP1:2-3	None Required	JP6:2-3	JP3:1-2, JP15:1-2, JP19:Open
Y/C (S-video)	JP1:1-2	None Required	JP6:1-2	JP3:1-2, JP15:1-2, JP19:Open
RGB, Sync on G	JP1:1-2	None Required	JP6:2-JP7:1	Not Applicable

Ch. 4 Non-Video Format	JP2	JP3	JP4	JP15	JP19
1.4 Vpp, AC-coupled	Open	2-3	Open	Open	1-2
0-5 V, DC-coupled	1-2	2-3	1-2	Open	1-2
-2.5 to +2.5 V, DC-coupled	1-2	2-3	1-2	Open	1-2

Ch. 4 Output Impedance	JP20	JP21	JP22
50 Ohms (Default)	1-2	1-2	Open
75 Ohms	1-2	Open	Open
600 Ohms	Open	1-2	1-2