DA4023
SDIF-2 DA
User Guide

The DA4023 SDIF-2 Distribution Amplifier module installs in the 4000-1 or 4000-2 Signal Processing Frame and provides 1 looping input and 8 outputs for SDIF-2 digital audio word clock distribution. The module consists of two components: the processing card, which inserts into the front of the 4000 frame, and the I/O card, which inserts into the back of the frame to provide connectors for I/O cables. Key features are listed below, and an overview describing the DA4023 module in greater detail later in this publication.

Key Features

The following list summarizes the key features of the DA4023 module:

- Ideal for fanning out digital audio timing signals to a wide array of audio equipment.
- Output levels suitable for driving CMOS inputs.
- One looping SDIF-2 digital audio word clock input.
- 8 outputs per module.
- Jumper selectable input impedance: 75 ohms or Hi-Z.

Processing Card Front Panel Description

Figure 1 illustrates the DA4023 Processing Card front panel. The front panel controls and indicators are described below.

Figure 1. DA4023 Processing Card Panel

Power - This green LED is normally ON to indicate that the module is receiving power from the NV4001/2 frame power supply through the motherboard. On-board power supplies then generate the +5, +12, and -12 VDC required by the module.

Presence - This green LED turns ON when an input signal is present.

I/O Card Rear Panel Description

Figure 2 illustrates the DA4023 I/O rear panel. Connector functions are described below.

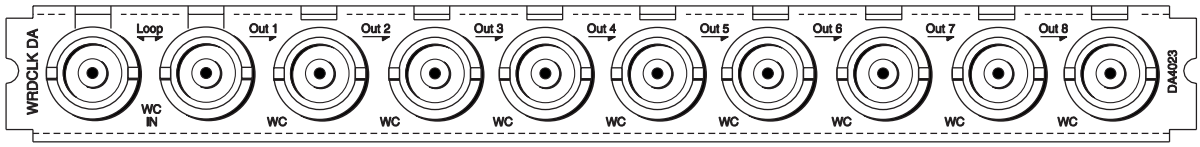

Figure 2. DA4023 I/O Card

WC In - This input accepts a looping SDIF-2 word clock reference for fanning out to other equipment via the 8 outputs. The input impedance can be set via on-board jumper J2 for 75 ohms (non-looping signal) or Hi-Z (looping signal).

Out 1 through 8 - These are 8 identical outputs replicated from the SDIF-2 digital audio word clock input. The output levels are greater than 4 volts (suitable for CMOS) when terminated into 75 ohms.

Specifications

Table 1 lists specifications for the DA4023 module.

Table 1. DA4050 SPECIFICATIONS

TYPE	PARAMETER
General	
Power	±15VDC from 4000 Series frame regulated to +5, +12, -12 VDC on-board
Power Consumption	6 Watts
Size	Processing Card: 0.563” (14.3mm) high x 6.125” (155.6mm) wide x 12.375” (314.3mm) deep
	I/O Card: 0.563” (14.3mm) high x 6.125” (155.6mm) wide x 2.938” (76.6mm) deep.
Weight	1.25 lbs (0.6kg) maximum
Inputs	
1 Looping	Signal: SDIF-2 Levels: TTL Data Rate: 28 kHz to 54 kHz (typical) Input Impedance: 75 ohms or high impedance, jumper selectable
Outputs	
8	Signal: Outputs follow SDIF-2 input Levels: Greater than +4 volts for driving CMOS inputs Impedance: low, terminate in 75 ohms

CONFIGURATION

Configuration of the DA4023 module consists of setting jumper J2 on the processing card for the input impedance. Select 75 ohms for a non-looping input, or select Hi-Z for a looping input that is terminated (in 75 ohms) at downstream equipment. See Figure 3 for the location of jumper J2.

Figure 3. Processing Card Jumper Location

INSTALLATION

The module can be installed (by qualified personnel only) with frame power on. Installation entails inserting the processing module into an available front slot of the 4000 frame and inserting the I/O module in the rear slot directly behind the processing module.

Using 75 ohm BNC coaxial cables, connect an SDIF-2 digital audio word clock source to the I/O Card input connector. Also connect the I/O card outputs to other devices using 75 ohm cables.

THEORY OF OPERATION

Refer to Figure 4. The input to the DA4023 is a single-ended passive loop-through connection which passes through a receiver IC and is distributed to eight line drivers. The line drivers produce eight identical single-ended outputs. Additional details are provided below.

Input Circuit

The input signal enters the module from the rear input connector and the motherboard, which applies it to the processing card. On the processing card, the signal is coupled to the input circuitry. Jumper J2 provides a means of selecting the input termination impedance: 75 ohms for terminating coaxial cables or high-impedance for loop-through applications. A resistor divider biases the inverting input of the receiver IC. This provides a threshold for slicing the input signal and ensures adequate noise rejection. A reference LED circuit monitors the input signal as it exits the receiver IC and lights the front panel Presence LED when a valid input signal is present.

Output Circuits

The single-ended input is fed to eight identical output circuits. High speed voltage feedback amplifiers provide output signal drive. The outputs signals are applied to the input/output interface connectors, and from there, the single-ended signals pass through the motherboard to the I/O board and then to the output BNC connectors.

Power

Pre-regulated power from the frame enters the module via the motherboard and the edge connector. Monolithic voltage regulators and associated filter circuits provide filtered and regulated +5, +12, and -12 VDC for the active components on the module. An LED connected via a resistor to the +5 V power rail lights when power is present.

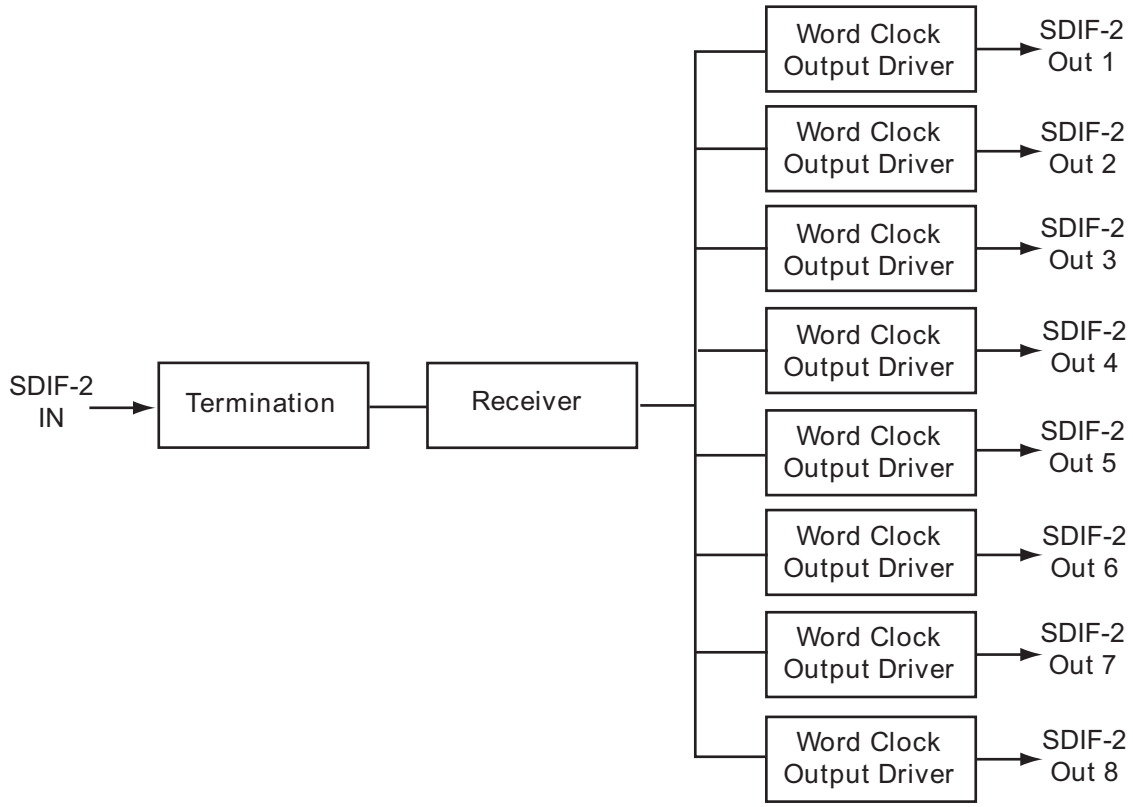

Figure 4. DA4023 Simplified Block Diagram

TROUBLESHOOTING & MAINTENANCE

The module requires no routine maintenance. If it does not appear to operate correctly, first reseat the module in the frame to ensure good internal connections and then check that the Power indicator on the front of the module is lit. If the signal exhibits problems, check signal sources and cables and terminations. For additional information, please refer to the 4000 Series Processing Equipment Instruction Manual. For technical assistance, call 1-530-265-1000 or send email to *nvsupport@nvision1.com*.

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