SDI-DVI-2SFP

Dual optical SDI to DVI converter

User manual

Rev. C

Nevion
Nordre Kullerød 1
3241 Sandefjord
Norway
Tel: +47 33 48 99 99
nevion.com

Nevion Support

Nevion Europe

P.O. Box 1020
3204 Sandefjord, Norway
Support phone 1: +47 33 48 99 97
Support phone 2: +47 90 60 99 99

Nevion USA

1600 Emerson Avenue
Oxnard, CA 93033, USA
Toll free North America: (866) 515-0811
Outside North America: +1 (805) 247-8560

E-mail: support@nevion.com
See http://www.nevion.com/support/ for service hours for customer support globally.

Revision history

Current revision of this document is the uppermost in the table below.

Rev.	Repl.	Date	Sign	Change description
C	B	2014-05-22	AJM	Minor updates before release
B	A	2014-02-24	SHH	Updated manual
A	-	2012-02-28	AJM	First version

Contents

1 Product overview

SDI-DVI-2-SFP will convert optical SDI signal into DVI-D or HDMI. The DVI and HDMI output can be used to feed a monitor for monitoring application.

Used together with DVI-SDI-2-SFP this card can be used as an optical extender for transporting DVI signal.

The optical receiver can be combined with Flashlink CWDM-18 filter making it possible to transport 18 DVI signal over one fiber. The optical receiver is a dual SFP and can be hot-swapped from the backplane.

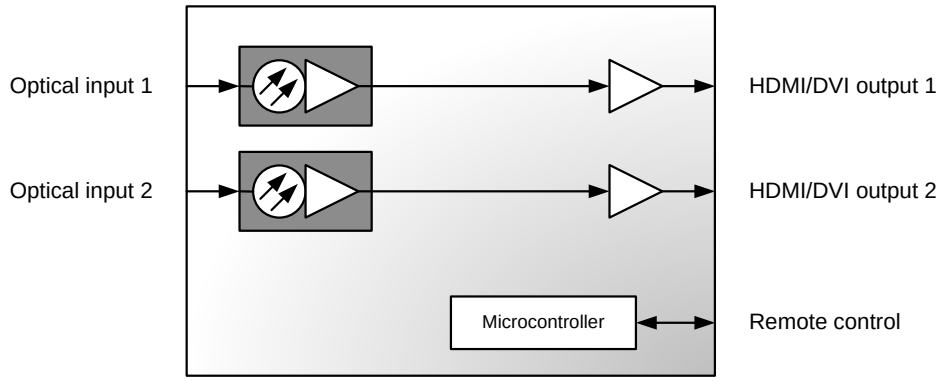


Figure 1 Block diagram of the SDI-DVI-2 converter

2 Specifications

2.1 General

Power	+5V DC / 3W, max
Control	Control system for access to setup and module status with BITE (Built-In Test Equipment)
Temperature range	0 to +40 °C

2.1 Optical Input

Number of inputs	2
Connector	LC/UPC
SFP type	Nevion Video SFP range, Dual receiver

See SFP datasheet for additional specifications

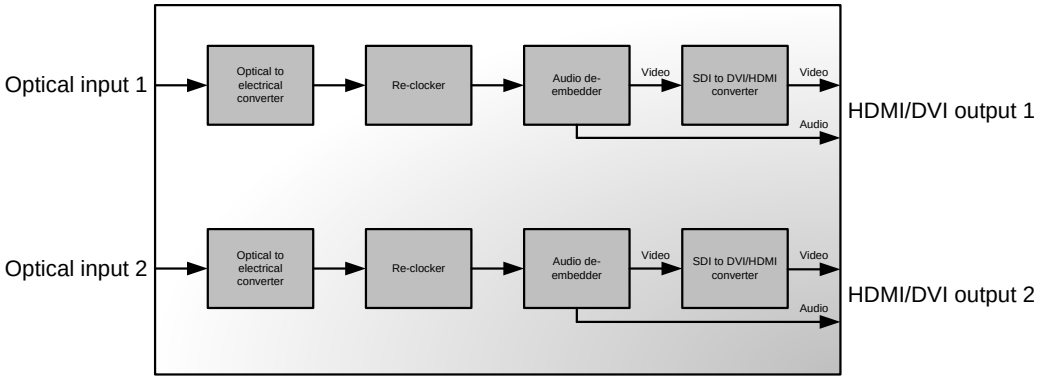
2.2 Electrical Outputs

Number of outputs	2
Connector	HDMI type D
	HDMI type A with use of adapter cable
	DVI-D with use of adapter cable
Supported format	525i/ 625i
	720p/ 1080i, 50/ 59.94/ 60Hz
	1080p, 50/ 59.94/ 60Hz
Number of bits	24bit (3x8bit)
Bandwidth	150MHz
Format	RGB 4:4:4, YCbCr 4:2:2, YCbCr 4:4:4
RGB Range	Full or SMPTE
Audio de-embedding	2 channels, AES 1 group. L-PCM, 48kHz

2.3 Standards

SMPTE292M, SMPTE259M, SMPTE297M, SMPTE425A, SMPTE425B, SMPTE424M

3 Operation



The optical SDI signal is converted into an electrical signal by the dual optical receiver SFP. The audio is de-embedded from the SDI signal and sent to the output connector. The SDI video is converted to DVI/HDMI. In HDMI the audio is available on the output while in DVI mode no audio is available on the output.

4 Configuration

The correct configuration can either be set with a DIP switch or with the GYDA Control System. The layout of SDI-DVI-2 is shown in the drawing below with the DIP switch to the upper left position.

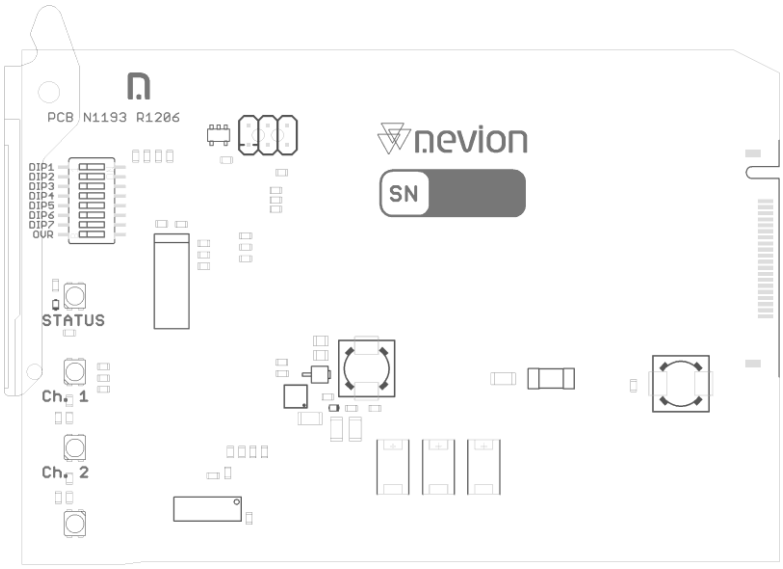


Figure 2 SDI-DVI-2 board layout

Switch #	Label	Function, DIP = ON	Function, DIP = OFF	Comment
1	DIP1	HDMI	DVI	Selects output format
2	DIP2			To be defined
3	DIP3			To be defined
4	DIP4			To be defined
5	DIP5			To be defined
6	DIP6			To be defined
7	DIP7			To be defined
8	OVR	Override GYDA control. Configuration with DIP switch	GYDA control. Configuration with GYDA	Select configuration from GYDA

All DIP switches are off when pointing towards the release handle.

5 Connections

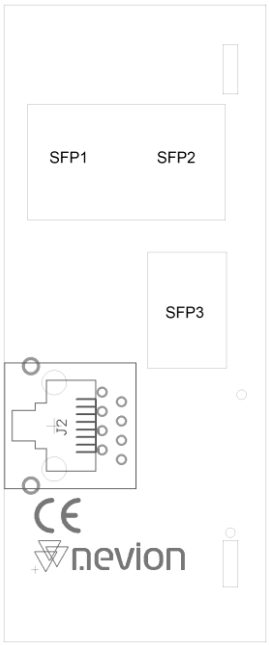


Figure 3 Connector module for SDI-DVI-2

5.1 Mounting the connector module

The details of how the connector module is mounted, is found in the user manual for the sub-rack frame FR-2RU-10-2.

This manual is also available from our web site:

http://www.nevion.com/.

5.2 Terminal ports

The connector module must be fitted with three SFP's. SFP3 is for the dual optical receiver module. While the SFP1 and SFP2 are for the HDMI/DVI SFP. The HDMI/DVI SFP are fitted with an HDMI type D connector, if other connect are preferred see chapter 5.3 for alternatives.

Terminal	Function	Supported Format	Mode
SFP3	Optical input	Optical SD/HD/3G-SDI	Input
SFP1	Electrical output	HDMI or DVI	Output
SFP2	Electrical output	HDMI or DVI	Output
GPI ALARM	Open Collector Alarms	Wired alarms	OC Output

Unused inputs should be terminated to avoid alarms triggered by noise.

5.3 Cable adapter

5.3.1 HDMI type A

An HDMI type D to HDMI type A can be delivered with the module for interfacing for interfacing to HDMI type A equipment.

5.3.2 DVI-D

An HDMI type D to DVI-D can be delivered with the module for interfacing to DVI-D equipment.

6 Module status

The status of the module can be monitored in three ways.

1. GYDA System Controller (optional).

2. GPI at the rear of the sub-rack.

3. LED's at the front of the sub-rack.

Of these three, the GPI and the LED's are mounted on the module itself, whereas the GYDA System Controller is a separate module giving detailed information on the card status.

6.1 GPI ALARM – Module Status Outputs

These outputs can be used for wiring up alarms for third party control systems. The GPI outputs are open collector outputs, sinking to ground when an alarm is triggered. The GPI connector is shown in figures below.

Electrical Maximums for GPI outputs

Max current: 100mA

Max voltage: 30V

6.1.1 GPI connections

SDI-DVI-2 module GPI pinning:

Signal	Name	Pin #	Mode
Status	General error status for the module.	Pin 1	Open Collector
LOS1	Loss of signal or missing SFP on channel 1.	Pin 2	Open Collector
LOS2	Loss of signal or missing SFP on channel 2.	Pin 3	Open Collector
Ground	0V / gnd pin.	Pin 8	0V.

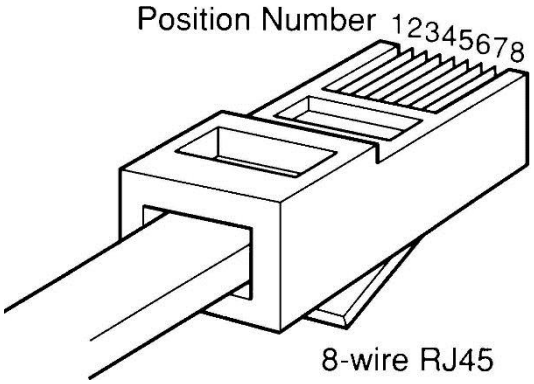
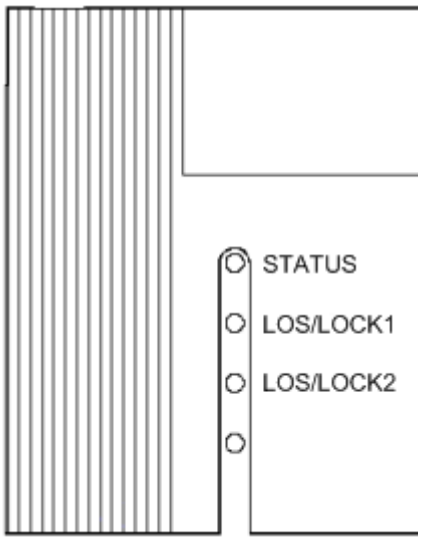


Figure 1GPI connector

6.2 Front panel – Status monitoring

The status of the module can be easily monitored visually by the LED's at the front of the module. The LEDs are visible through the front panel as shown in the figure below.



The SDI-DVI-2 has 4 LED's each showing a status corresponding to the GPI pinning.

Diode \ State	Red LED	Yellow LED	Green LED	No light
Status	Module is faulty, or module is initializing.	N/A	Module is OK Module power is OK	Module has no power
LOS/LOCK1	No input signal on optical input 1.	Channel 1 is not in lock or unsupported format.	Channel 1 is in lock and supported format.	Missing SFP on signal 1
LOS/LOCK2	No input signal on optical input 2.	Channel 2 is not in lock or unsupported format.	Channel 1 is in lock and supported format.	Missing SFP on signal 1
Receiver SFP	Missing SFP	NA	Present SFP	NA

Table 1: LED states and what they mean

General environmental requirements for Nevion equipment

1. The equipment will meet the guaranteed performance specification under the following environmental conditions:
   - Operating room temperature range: 0°C to 45°C
   - Operating relative humidity range: <90% (non-condensing)

2. The equipment will operate without damage under the following environmental conditions:
   - Temperature range: -10°C to 55°C
   - Relative humidity range: <95% (non-condensing)

Product Warranty

The warranty terms and conditions for the product(s) covered by this manual follow the General Sales Conditions by Nevion, which are available on the company web site:

www.nevion.com

Appendix A Materials declaration and recycling information

A.1 Materials declaration

For product sold into China after 1st March 2007, we comply with the “Administrative Measure on the Control of Pollution by Electronic Information Products”. In the first stage of this legislation, content of six hazardous materials has to be declared. The table below shows the required information.

組成名稱 Part Name	Toxic or hazardous substances and elements					
	鉛 Lead (Pb)	汞 Mercury (Hg)	镉 Cadmium (Cd)	六价铬 Hexavalent Chromium (Cr(VI))	多溴联苯 Polybrominated biphenyls (PBB)	多溴二苯醚 Polybrominated diphenyl ethers (PBDE)
<Product>	O	O	O	O	O	O
<Power supply, if delivered with unit>	O	O	O	O	O	O
O: Indicates that this toxic or hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006. X: Indicates that this toxic or hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.						

This is indicated by the product marking:

A.2 Recycling information

Nevion provides assistance to customers and recyclers through our web site http://www.nevion.com/. Please contact Nevion’s Customer Support for assistance with recycling if this site does not show the information you require.

Where it is not possible to return the product to Nevion or its agents for recycling, the following general information may be of assistance:

- Before attempting disassembly, ensure the product is completely disconnected from power and signal connections.
- All major parts are marked or labeled to show their material content.
- Depending on the date of manufacture, this product may contain lead in solder.
- Some circuit boards may contain battery-backed memory devices.