



NUGGET

R e f e r e n c e M a n u a l

Version 2.5

Compliant with: Firmware Version 1.4.28-24

NUG-SDI Version 84

TABLE OF CONTENTS

1	INTRODUCTION	10
2	NUGGET MODELS	11
2.1	NUGGET FRONT PANEL	11
2.2	NUGGET REAR PANEL	11
2.3	NUGGET PRO REAR PANEL	11
3	CONTROLLING THE NUGGET	12
3.1	DOREMI ASSET MANAGER	12
3.2	NUGGET IP ADDRESS	12
3.3	FILE TRANSFER.....	12
3.4	PLAYLISTS	12
3.5	AUTO START.....	12
3.6	TIMECODE OFFSET	12
3.7	EMULATION.....	13
4	TRANSFERRING FILES TO THE NUGGET	14
4.1	DOREMIAM INSTALLATION.....	14
4.2	DESCRIPTION.....	14
4.3	RUNNING DOREMIAM FOR THE FIRST TIME	14
4.4	ADDING NUGGET UNITS TO DOREMIAM	14
4.5	TRANSFERRING FILES TO NUGGET UNITS.....	14
4.6	SUPPORTED VIDEO FORMATS.....	15
5	SYNCHRONIZING MULTIPLE NUGGET UNITS	16
5.1	CONSTANT PLAY LATENCY	16
5.2	SYNCHRONIZED PLAYBACK.....	16
5.2.1	<i>Locking to Sync IN</i>	16
5.2.2	<i>Locking to LTC IN</i>	16
5.3	SYNCHRONIZED START	16
5.3.1	<i>Gang Start</i>	17
5.3.2	<i>Chase</i>	17
5.4	SYNCHRONIZING NUGGET UNITS USING CHASE	17
5.5	SYNCHRONIZING NUGGET UNITS AUTOMATICALLY	18
5.6	SYNCHRONIZING MORE THAN 2 NUGGET UNITS	18
5.7	LTC IN LATENCY.....	18
6	VIDEO OUTPUTS.....	19
6.1	DVI-I CONNECTOR	19
6.2	HD-SDI CONNECTOR	19
6.3	SD-SDI CONNECTOR	19
6.4	COMPOSITE CONNECTOR	19
6.5	COLOR SPACE SETTING	19
7	NUGGET VIDEO SETTINGS	20
7.1	BEST SETUP FOR 1080i, 720P AND SD FORMATS	20
7.2	BEST SETUP FOR 1080P FORMATS.....	20
7.3	VIDEO OUT AUTO MODE.....	20

7.4	RECOMMENDED SETTINGS	20
8	VIDEO OUTPUTS GENLOCK	21
9	NTSC CLOSED CAPTION	21
10	LOGO OVERLAY AND BURN IN WINDOW (BIW)	22
10.1	LOGO DESIGN.....	22
10.2	LOGO FILE TRANSFER.....	22
10.3	BURN IN WINDOW	22
11	FIRMWARE UPGRADE INSTRUCTIONS	23
12	NUGGET MPEG2 FILE STRUCTURE	24
13	VIDEO DURATION LIMITATIONS	24
14	CONTROL PROTOCOL	25
14.1	CONTROLLING THE NUGGET USING THE SERIAL PORT.....	25
14.1.1	<i>Wiring of the Standard RS422 Cable</i>	<i>26</i>
14.1.2	<i>Wiring of the NUGGET RS422-PC Cable</i>	<i>27</i>
14.1.3	<i>Wiring of the Nugget RS422-Mac Cable</i>	<i>28</i>
14.1.4	<i>Wiring of the DB-25 Audio Connector</i>	<i>29</i>
15	SPECIFICATIONS	30
15.1	INTERFACE	30
15.2	AUDIO	30
15.3	VIDEO	30
15.4	TIMECODE.....	30

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(d) All waivers must be in writing. Any waiver or failure to enforce any provision of this Agreement on one occasion will not be deemed a waiver of any other provision or of such provision on any other occasion.

WARNING

THIS APPARATUS MUST BE EARTHED

IMPORTANT WARNING

Power requirements for electrical equipment vary from area to area. Please ensure that your NUGGET meets the power requirements in your area. If in doubt, consult a qualified electrician or your Doremi Labs dealer.

AVIS

Le voltage peut différer d'un pays à l'autre. Il faut que le NUGGET soit ajuste au voltage du pays. LA SOURCE DE PUISSANCE DOIT AVOIR UN CONDUCTEUR CONNECTE A LA TERRE. Toutes réparations doivent être effectuées par une personne qualifiée. AFIN D'EVITER UN CHOC ELECTRIQUE, VEUILLEZ NE PAS ENLEVER LE CAPOT.

Nugget Power Ratings

- AC Input: 100-240V~, 4-2A, 60-50Hz
- Maximum Power Consumption: 180W

Rack Mount and Thermal Information

- Maximum operating ambient temperature is 40°C.
- Never restrict the airflow through the devices' fan or vents.
- When installing equipment into a rack, distribute the units evenly. Otherwise hazardous conditions may be created by an uneven weight distribution.
- Connect the unit only to a properly rated supply circuit. Reliable earthing (grounding) of rack-mounted equipment should be maintained

PROTECTING YOURSELF AND THE NUGGET

Never touch the AC plug with wet hands.

Always disconnect the NUGGET from the power supply by pulling on the plug, not the cord.

Allow only a Doremi Labs, Inc. dealer or qualified professional engineer to repair or reassemble the NUGGET. Apart from voiding the warranty, unauthorized engineers might touch live internal parts and receive a serious electric shock.

Do not put, or allow anyone to put any object, especially metal objects into the NUGGET. Use only an AC power supply. Never use a DC power supply.

If water or any other liquid is spilled into or onto the NUGGET, disconnect the power, and call your dealer. Make sure the unit is well ventilated, and away from direct sunlight. To avoid damage to internal circuitry, as well as the external finish, keep the NUGGET away from sources of direct heat (stoves, radiators, etc.).

Avoid using aerosol insecticides, etc. near the NUGGET. They may damage the surface, and may ignite. Do not use denatured alcohol, thinner or similar chemicals to clean the NUGGET. They will damage the finish.

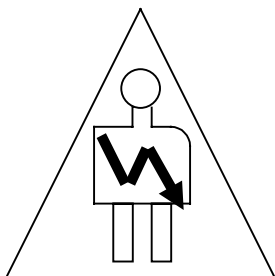
Modification of this equipment is dangerous, and can result in the functions of the NUGGET being impaired. Never attempt to modify the equipment in any way.

In order to ensure optimum performance of your NUGGET, select the setup location carefully, and make sure the equipment is used properly. Avoid setting up the NUGGET in the following locations:

1. In a humid or dusty environment
2. In a room with poor ventilation
3. On a surface which is not horizontal
4. Inside a vehicle such as a car, where it will be subject to vibration
5. In an extremely hot or cold environment

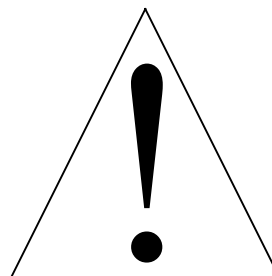
WARNING!!

To prevent fire or shock hazard, do not expose this appliance to rain or moisture

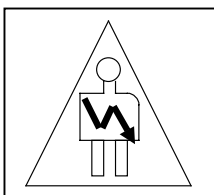


CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN



**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK,
DO NOT REMOVE COVER (OR BACK).
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.**



The lightning flash with the arrowhead symbol superimposed across a graphical representation of a person, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure; that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

CE NOTICE

Marking by the symbol CE indicates compliance of the device to the EMC (Electromagnetic Compatibility) directive and to the Low Voltage directive of the European Community. Such marking is indicative that this device meets or exceeds the following technical standard:

- EN 55022 "Limits and Methods of Measurement of Radio Interface Characteristics of Information Technology Equipment."

A "Declaration of Conformity" in accordance with the above standard has been made and is on file at Doremi Labs, Europe, Valbonne, France.

1 INTRODUCTION

Thank you for your Nugget player purchase. Nugget is a high quality HD and SD MPEG2 video player that decodes MPEG2 files up to 80Mbps/sec. Nugget decodes both MPEG2 4:2:2 and 4:2:0 files.

Using the Doremi Asset Manager application, you can transfer, MPEG2 stream files, QuickTime, AVI, WMV and MXF files to the Nugget.

The Pro version of the Nugget adds HD-SDI, SD-SDI, Genlock and LTC IN/OUT. Genlock can be used to synchronize several units to play at the same speed. LTC IN /OUT can be used to chase several units to keep them in frame accurate sync. HD-SDI and SD-SDI can be used to connect to professional monitors or to high definition recorders.

2 Nugget Models

Nugget players come in 5 different models: Nugget, Nugget-Pro, Nugget-ProSD, Nugget-2u and Nugget-2uPro.

Nugget: MPEG2 player 422/420 up to 80 Mbits/sec with DVI-I video

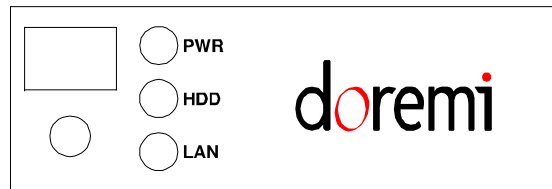
Nugget-Pro: Same as Nugget plus, HD-SDI out, Sync in and LTC in/out.

Nugget-ProSD: Same as Nugget-Pro but can only load SD files. Can be upgraded to Nugget-Pro.

Nugget-2u: Same as Nugget but 2RU high with a removable drive

Nugget-2uPro: Same as Nugget-Pro but 2RU high with a removable drive

2.1 Nugget Front Panel

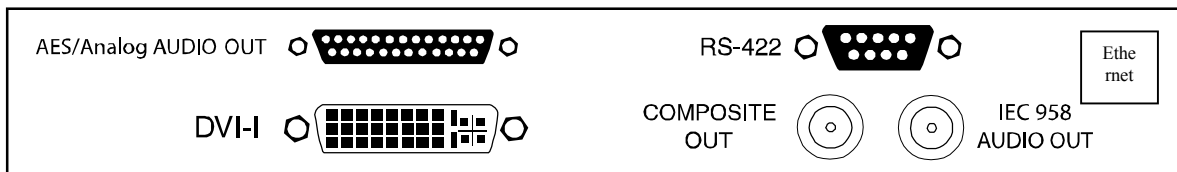


PWR: Lights when the unit is on

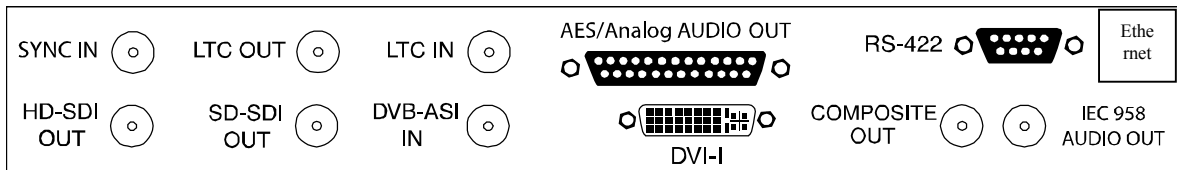
HDD: Indicates hard drive access

LAN: Indicates network access via Ethernet

2.2 Nugget Rear Panel



2.3 Nugget Pro Rear Panel



- The audio breakout cable is manufactured by Hosa part number DTM-803, it will provide 3 pairs of AES/EBU on XLRs 1,2,3 and 3 pairs of unbalanced analog channels for monitoring purpose on XLRs 5,6,7 (two unbalanced analog audio channels per XLR. Pin1=GND, pin2=left, pin3=right).
- The RS422 port can be used to control the Nugget players using the Odetics protocol.
- Ethernet (100BT) is used for file transfer, firmware update and control.

3 Controlling the Nugget

3.1 Doremi Asset Manager

The Nugget player ships with a Software program designed by Doremi to take full advantage of the Nugget features by providing file transfer, settings modification and control capabilities. Please refer to Doremi Asset Manager (DoremiAM) for further information.

3.2 Nugget IP Address

All Nugget players ship with the default IP address: 192.168.100.191. You can use DoremiAM to change the IP address of the Nugget. If you have changed the IP address of the Nugget and don't remember it, you can use DoremiAM with the RS232 to RS422 cable provided with your unit to get or change the IP address using the computer's serial port.

3.3 File Transfer

Media files can be transferred to the Nugget using DoremiAM.

3.4 Playlists

DoremiAM provides full playlist management.

3.5 Auto Start

Using DoremiAM you can set the Nugget to automatically play a specific file or playlist after boot. You can also set the Loop mode ON or OFF to keep the playback going in a loop.

3.6 Timecode offset

Using Device Settings you can set the Nugget to either A-Time or Timecode.

- A-Time: The first frame of video will start at timecode 00:00:00:00 unless you define a TC offset in the Info tab. This type of offset is created on the Nugget clip and is only active in A-Time mode.
- Timecode: The first frame of video will start at the Timecode offset value shown under "Database information > Timecode tab". If the source file supports timecode (all mpeg2 streams), the Timecode offset value will be automatically calculated during the import process, otherwise it will be set to 00:00:00:00. In that case, you can create a timecode offset by changing its value in the Database information window. This type of offset is created on the Database and is active in Timecode mode. Use Timecode offset when you send one clip to multiple Nugget devices to avoid creating an A-Time offset on each unit.

3.7 Emulation

A controlling device will always try to identify the controlled device by sending a Device ID command. Settings the emulation mode to Doremi, DVW500 or BVW75 will cause the Nugget to respond with a Doremi, DVW500 or BVW75 device ID. Default is Doremi.

4 Transferring files to the Nugget

To transfer media files to the Nugget, use Doremi Asset Manager. A brief description of DoremiAM will be provided in this manual, for more details, please refer to the Doremi Asset Manager manual.

4.1 DoremiAM Installation

Install the application by double clicking on the DoremiAssetManager-x.x.x_y.y-y_z.exe icon. Where:

x.x.x = DoremiAM version number

y.y-y = Nugget Firmware number

z = NUG-SDI Firmware number

PS: SOME COMPUTERS REQUIRE A REBOOT AFTER THE INSTALLATION IS COMPLETE. IF YOU HAVE PROBLEMS TRANSFERRING FILES TO THE NUGGET USING DOREMI ASSET MANAGER, YOU MUST REBOOT THE SYSTEM AFTER THE INSTALLATION IS COMPLETE.

4.2 Description

DoremiAM runs as a service indicated by a green circle icon in the right section of the toolbar. The icon will be red if any failure occurs.

4.3 Running DoremiAM for the First Time

When you run DoremiAM for the first time, it will prompt you to define a database location. The database (DB) folder created inside the folder you specify will hold copies of all files you transfer to the Nugget using DoremiAM. The database location can be on the internal drive, USB or Fire Wire drive or on a NAS connected to the PC running DoremiAM.

4.4 Adding Nugget Units to DoremiAM

If DoremiAM is minimized, double click on its icon to bring it up. Under the Devices tab, select the Default Group or create a new Group then click on New Device.

Type the Name, as you want it to appear, and type the IP address of the Nugget you want to add. You can organize the units by groups if needed.

Add all Nugget units in your facility.

4.5 Transferring Files to Nugget Units

- Using Windows Explorer select all the files you want to transfer and Right Click on one of them
- Scroll down to Send To and select "Doremi devices"
- Select all Nugget units to send the files to. You can Shift Select or Ctrl Select multiple Nugget units.
- Click Finish to start the transfer

If you bring the DoremiAM window up and click on the Tasks tab, you can see the progress of the file transfer.

All media files will be added to the Database before they get transferred to the Nugget units. The Clip database tab will show you all files in the database.

4.6 Supported Video Formats

DoremiAm supports most common video formats:

MPEG2 Streams

- Transport Streams
- Program Streams
- Elementary Streams

QuickTime

- Blackmagic uncompressed 8bit and 10bit
- Component YUV uncompressed
- Photo JPEG. MJPEG-A, MJPEG-B
- H264
- MPEG
- Avid DNxHD codec

WMV (Windows Media)

- All WMV files are accepted except files with WMAPro (WMAV3) audio codec which requires a special lisenace.

AVI

- DIVX
- XVID
- MPEG2
- DVCPRO25
- Matrox MPEG2

MXF format

- DV
- MPEG2

Image Sequences

- TIFF
- TARGA
- JPEG

5 Synchronizing Multiple Nugget Units

Multi-screen applications, like 3D and Stereoscopic, require continuous, frame accurate lock that can be easily achieved on the Nugget players.

Synchronizing two or more units require two major features: Constant Play Latency and Synchronized Playback.

5.1 *Constant Play Latency*

The Play (Stop) Latency is the number of frames that will pass from the time a server gets a PLAY (Stop) command until it actually starts playing back (stops). You can send a PLAY command to two servers at the same exact time, but if the Play Latency of the servers is not the same, each will start on a different frame and the playback will not be synchronous. The Nugget players have a Play Latency that can be defined using DoremiAM Device Settings, default value is 5.

5.2 *Synchronized Playback*

If two servers start playback in sync, but each is playing back with its own internal clock, after a certain time they will drift apart and the frame accurate lock will be lost. The Nugget Pro players can synchronize their playback to two different external sources: Sync IN and LTC IN

5.2.1 **Locking to Sync IN**

For 25, 29.97 and 59.94 FPS formats, bi-level video sync can be fed using a low cost sync generator.

For 23.98, 24 and 60 FPS formats, tri-level video sync can be fed. Because tri-level sync generators are expensive, we came up with a very cost effective and innovative way to synchronize multiple Nugget Pro players using the LTC input.

5.2.2 **Locking to LTC IN**

This is the easiest way to achieve synchronized playback without the need for an external sync generator. You must designate one of the Nugget Pro players as the Master and set its Sync Source to Internal. All other Nugget Pro players will be designated as Slave and their Sync Source must be set to LTC IN.

The LTC OUT of the Master should be fed to the LTC IN of all Slave players. For one Slave, use a standard video BNC to BNC cable. For multiple Slave players, use a standard audio or video distribution amplifier, feed it from the LTC OUT of the master and distribute it to the LTC IN of all Slave players.

Locking to LTC requires NUG-SDI version 60 or higher.

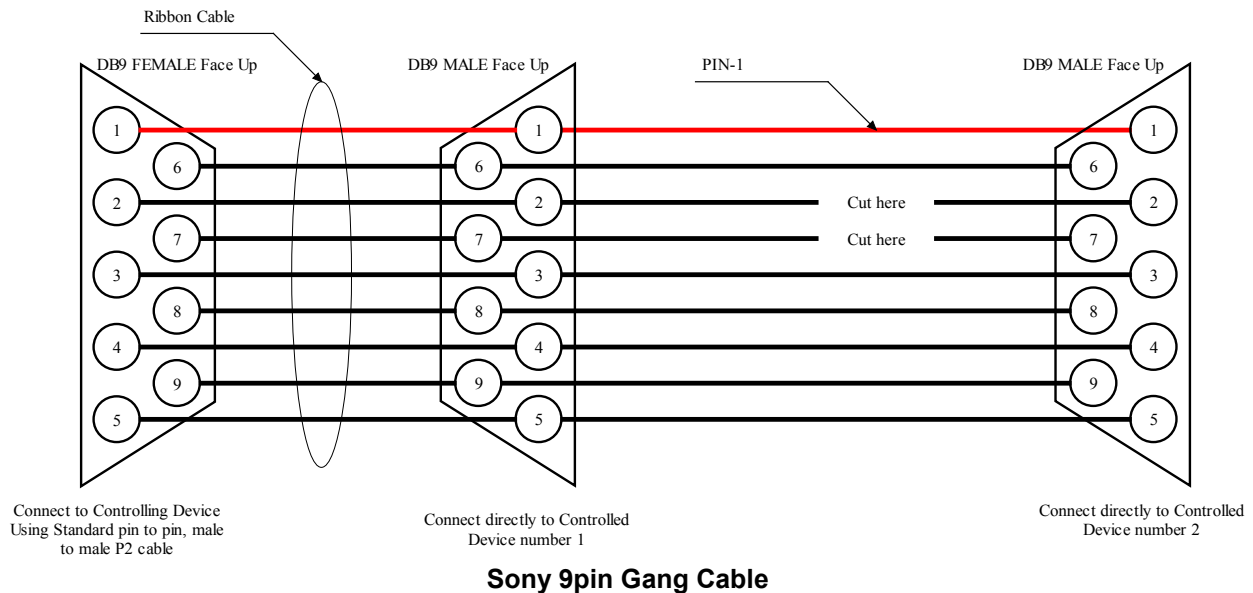
5.3 *Synchronized Start*

There are many ways to start a multi-screen system based on multiple units, two will be discussed in this manual: Gang Start and Chase

5.3.1 Gang Start

Gang start requires a controlling device connected to all Nugget players and capable of sending commands, like load the proper files, locate to the beginning timecode and send the Play command. The Doremi RCV2-9P can be used as a Gang controller for a 2-screen operation.

If you don't have a controller with Gang capability like the RCV2, you can make a special cable that gangs the send lines and receives only from one Nugget. This will allow you to use a single machine controller to send the same exact commands to two players.



Our Vsynchronizer application can be used to Gang start multiple units. Batch files can also be created using our Sertest command prompt application to achieve Gang start.

5.3.2 Chase

A player in Chase mode can read the incoming timecode and start synchronized playback without the need for an external controller. Chase mode requires a Master Slave relationship just like the Sync to LTC described above. The current version of firmware supports Chase.

5.4 Synchronizing Nugget Units using Chase

To synchronize 2 Nugget Units:

- Designate one unit as Master and the other as Slave.
- Connect the LTC Out from the Master to the LTC IN of the Slave
- Set the SYNC SRC on the Master to Internal
- Set the CHASE MODE on the Master to OFF
- Set the SYNC SRC on the Slave to LTC IN
- Set the CHASE MODE on the Slave to ON
- Set the Chase mode DRIFT to 0 except for 720p formats where the DRIFT must be set to at least 2.

If you control the Master unit and start playing, the Slave will follow based on the LTC connection between Master and Slave.

5.5 Synchronizing Nugget Units Automatically

If you want to setup the Nugget units to start synchronous playback at power up:

- Designate one unit as Master and the other as Slave
- Connect the LTC Out from the Master to the LTC IN of the Slave
- Set the SYNC SRC on the Master to Internal
- Set the SYNC SRC on the Slave to LTC IN
- Set the CHASE MODE on the Slave to ON (CHASE MODE on the Master MUST stay OFF)
- Set the LOOP MODE on the Master to ON
- Set the LOOP MODE on the Slave to ON
- Set the AUTO START on the **Master** to File, select the filename and set auto start to **Play**
- Set the AUTO start on the **Slave** to File, select the filename and set auto start to **Pause**
- Save Defaults on both Master and Slave.

If you reboot both units, the Master will load the designated file automatically and starts playback. The Slave will also load the designated file automatically and because Chase is ON on the Slave, it will start reading LTC from the Master and follow. Since LOOP MODE is ON, both Master and Slave will keep on looping for continuous playback.

5.6 Synchronizing more than 2 Nugget Units

If you have more than 2 Nugget units to synchronize:

- Designate one unit as Master and the rest as Slaves
- Connect the LTC OUT of the Master to an analog video distribution amplifier (an analog audio DA is more suitable, but a video DA is easier to connect because it has BNC connectors)
- Follow the same synchronization instructions in the previous 2 paragraphs.

PS: We strongly recommend using a DA to distribute the LTC from the Master to multiple slave units as opposed to daisy chaining LTC between units, but if a DA is not available, daisy chaining will be acceptable.

5.7 LTC IN Latency

If you want the Nugget to chase 1 or 2 frames ahead of the incoming LTC, you can set the LTC IN Latency to 1 or 2. Values up to 5 are allowed, default value is 0.

6 Video Outputs

There are 5 different video outputs on the Nugget, they are mapped as follows:

Output	Signal Type	Connector Type	Video Out or Aux Out
HD-SDI	Digital	BNC	Video
DVI-D	Digital	DVI-I	Video
DVI-A	Analog	DVI-I	Video
SD-SDI	Digital	BNC	Aux
Composite	Analog	BNC	Aux

6.1 DVI-I Connector

The DVI-I connector carries 2 signals, analog and digital. The resolution and frame rate of the DVI signal follows the Video Out settings and can be: 1080i, 1080p, 1080psf or 720p.

- To connect to an analog YPbPr or RGB display device, use a DVI-I to VGA or DVI-I to BNC cable.
- To connect to a DVI digital display device, use a DVI-D-to-DVI-D cable.

6.2 HD-SDI Connector

The resolution and frame rate of the HD-SDI signal follows the Video Out settings and can be 1080i, 1080p, 1080psf or 720p. It also carries up to 6 channels of embedded audio.

6.3 SD-SDI Connector

The resolution and frame rate of the SD-SDI signal follows the Aux Out settings and can be 480i (NTSC) or 576i (PAL). It also carries up to 6 channels of embedded audio.

6.4 Composite Connector

The resolution and frame rate of the Composite signal follows the Aux Out settings and can be NTSC or PAL.

6.5 Color Space Setting

The color space of the Aux Display is always YUV.

The color space of the Main Display can be set to RGB or YPbPr using DoremiAM Device Settings.

- For use with HD-SDI or analog YPbPr display devices, you must set the color space to YPbPr
- For use with DVI-D or analog RGB display devices, you must set the color space to RGB.

If you look at the HD-SDI output while the color space is set to RGB, the colors will not look correct.

If you look at the DVI-D output while the color space is set to YPbPr, the colors will not look correct.

7 Nugget Video Settings

The Nugget has two video settings, Video Out and Aux Out.

- The Video Out settings controls the signals on the DVI-A, DVI-D and HD-SDI connectors
- The Aux Out settings control the signals on the Composite and SD-SDI connectors.

7.1 Best Setup for 1080i, 720p and SD Formats

If you work in 1080i, 720p or SD formats at 29.97 (59.94) or 25 (50) frames per second, both Video Out and Aux Out can be active at the same time. Using DoremiAM Device Settings set:

- Video Out: Format=Auto and Aspect Ratio=None
- Aux Out: Anamorphic

7.2 Best Setup for 1080p Formats

For 1080p formats including 23PSF and 24PSF, the Aux output must be disabled for proper playback. Using DoremiAM Device Settings set:

- Video Out: Format=Auto and Aspect Ratio=None
- Aux Out: OFF

7.3 Video Out Auto Mode

When the Video Out is set to Auto, the output format will be the same as the file format. This eliminates any scaling from the output and yields the best quality picture.

7.4 Recommended Settings

Output Settings depend on the how you are using the Nugget player and the display device connected to it.

- If you want to run playlists and have seamless transitions, all files should have the same format and must be encoded in I-Only. Set the Video Out to Auto or force it to the same format the files were encoded with. If the format is 108i or 720p, you can set the Aux Out ON.
- If you want to run playlists but don't care about seamless transitions, files can have different formats, and the output can be set to Auto or be forced. If you want to avoid monitor flickers caused by format changes, force the output and don't set it to Auto. If you want to avoid bad frames displayed during transitions, have some black at the start and end of every clip.
- If you are connected to a monitor that does not support the file format you are using, you must force the output. For example if the file is encoded in 24p and your HD-SDI monitor does not support 24p, but support 24pSF, you must force the output to 1080i-47.95 and disable the Aux Out.

For best HD performance we recommend:

- Video Out: Format=Auto, Aspect=None
- Aux Out: OFF.

8 Video Outputs Genlock

All video outputs of the Nugget can be locked to external sync. If your Main video output is 1080i-59.94 and your Aux output is Anamorphic, the HD-SDI, SD-SDI and Composite outputs can all be locked to the same bi-level or tri-level sync source.

To genlock on the pixel and line of the sync signal, you can change the H and V values. For some formats, the Nugget might not be able to line and pixel lock on all three outputs, for that reason we have an extra setting called Lock HD/SD.

- When Lock is set to HD, VTRIG is adjusted internally so when VT is set to 0, the HD-SDI is line locked to the sync source, The SD-SDI and composite output will still be locked to the sync source, but for some formats, they will not be line locked.
- When Lock is set to SD, VTRIG is adjusted internally so when VT is set to 0, the SD-SDI is line locked to the sync source, The HD-SDI and composite output will still be locked to the sync source, but for some formats, they will not be line locked

To line lock the composite output, it's best to set the Lock to SD, and then change the VT until the composite output is line locked to the sync source.

The HZ value can be changed for pixel lock.

9 NTSC Closed Caption

The Nugget supports closed caption on extended NTSC video files encoded as 512x720. When such file is loaded, you can adjust the VBI using DoremiAM to move the video so the closed caption data in the file will align with video line 21. For files that are properly encoded the closed caption will be aligned with video line 21 when VBI is set to +3, which is the default value. If your file is not properly aligned, you can change the VBI value until the closed caption data aligns with video line 21.

10 Logo Overlay and Burn In Window (BIW)

The Nugget can display a small logo overlay on the HD-SDI output.

10.1 Logo Design

Logo files should be designed as PNG without compression with the following restrictions: 64x64 with 15 colors + transparency or 128x64 with 3 colors + transparency. Gimp is a free software utility that can be used to generate the PNG file.

10.2 Logo File Transfer

Use DoremiAM's Logo Manager to send the PNG logo file from your PC to the Nugget.

10.3 Burn In Window

The Nugget can display a burn in window on both HD-SDI and SD-SDI outputs. DoremiAM provides separate controls for BIW on both outputs.

HD-SDI Options are:

- BIW: OFF, White on Black, Black on White, White on background, Black on background
- Mode: Normal or Enhanced. Normal shows the timecode only, while enhanced shows timecode, video format and servo lock status
- Position: Top Left, Top Center, Top Right, Bottom Left, Bottom Center and Bottom Right.
- Size: Auto, Small and Large. Auto will change the size to small or large based on the format specified.

SD-SDI Options are:

- BIW: OFF, White on Black, Black on White, White on background, Black on background
- Mode: Normal or Enhanced. Normal shows the timecode only, while enhanced shows timecode, video format and servo lock status.

11 Firmware Upgrade Instructions

The Nugget has two firmware packages: Nugget Firmware and NUG-SDI firmware. The later one is only needed for Nugget Players with the SDI option.

Doremi Asset Manager is packaged with the adequate Nugget firmware packages. Please refer to the DoremiAM manual for upgrade instructions.

12 Nugget MPEG2 File Structure

A Clip ID that is 8 characters long represents each file. In addition to Clip ID, DoremiAM shows a Title field that has a longer name (usually the original file name unless changed by the user during import). When browsing from an Odetics controller like the RCV2, ListMaker, or a third party controller or automation software, only the Clip ID is visible.

Each clip ID has 7 different files placed automatically by DoremiAM in the video data directory:

Filename.aif:	Audio elementary stream file
Filename.aif.idx:	Audio index file
Filename.aif.nfo:	Audio information file
Filename.m2v:	Video elementary stream
Filename.m2v.idx:	Video index file
Filename.m2v.nfo:	Video information file
Filename.nug:	A/V information file

These files are transparent to the user.

13 Video Duration Limitations

The Nugget Player has some minor limitations:

- To use a file in loop mode or in a playlist, the file duration must be at least 31 frames.
- Any clip in a playlist must also be at least 31 frames long to keep the playlist going, shorter clips will cause the playlist to stop.

If you set Loop Mode ON during the last 60 frames of playback, the unit will not loop mode until you cue up to start and hit play again.

14 Control Protocol

The Nugget can be controlled using the RS422 port or using TCP/IP.

The Nugget uses the standard P2 protocol or otherwise known as the Sony 9-pin protocol for non-file related functions and it uses the Odetics protocol to load and browse files.

Developers can send an email to sales@doremilabs.com to get a complete Nugget Control Protocol document.

14.1 Controlling the Nugget using the Serial Port

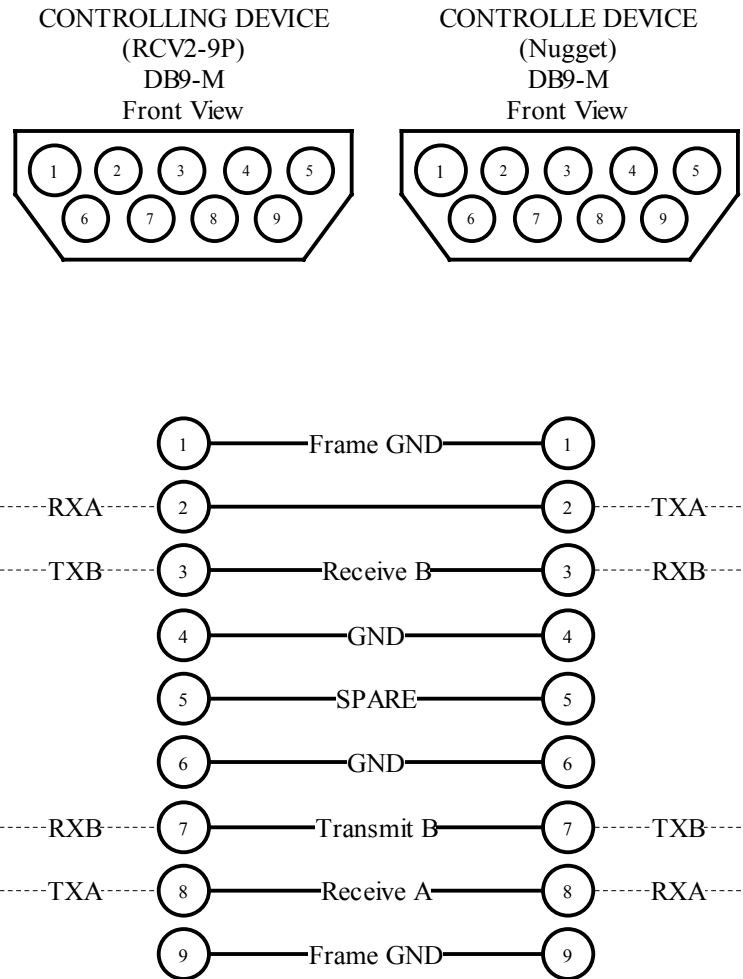
To control the nugget using the serial port, you need to have the proper RS422 cable.

- If you are using a controller with an RS422 serial port, use the standard RS422 cable.
- If you are using a PC with an RS232 port, use the RS422-PC cable included with the Nugget
- If you are using a Mac with a mini-DIN8 RS422 cable, use the RS422-MAC.

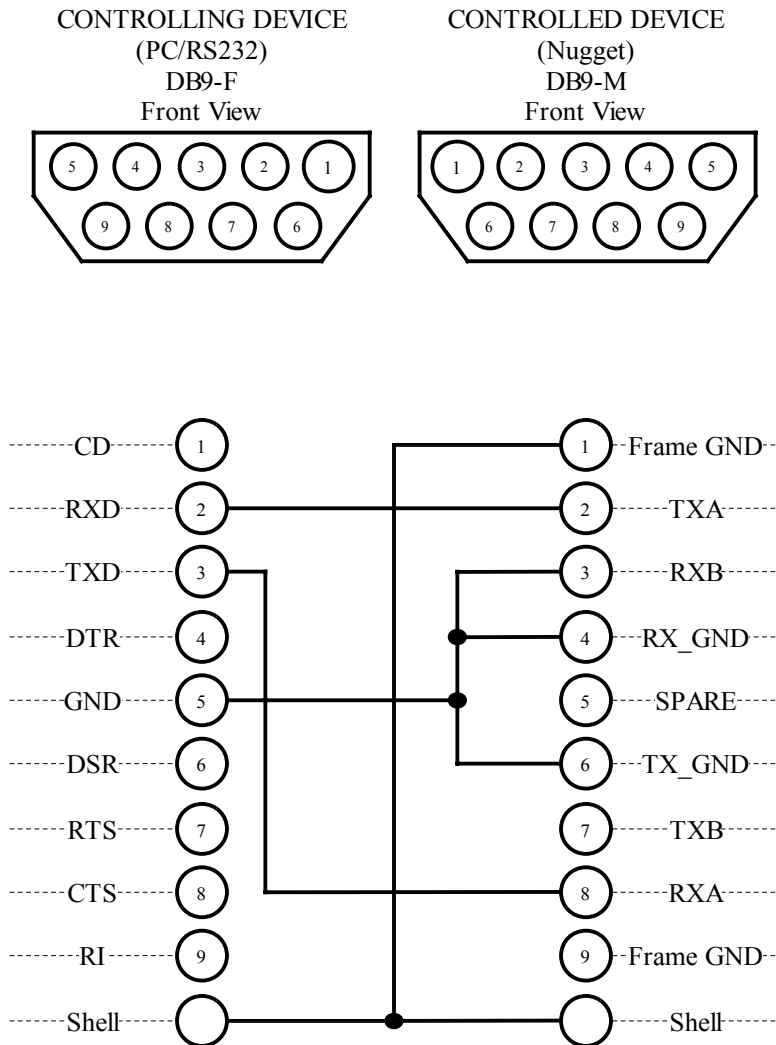
- All these cables are described in the following paragraphs.

14.1.1

Wiring of the Standard RS422 Cable



14.1.2 Wiring of the NUGGET RS422-PC Cable

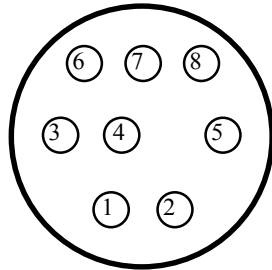


Wiring List: Nugget (1) to Nugget Shell to PC Shell
 Nugget (2) to PC (2)
 Nugget (8) to PC (3)
 Nugget (3 + 4 + 6) to PC (5)

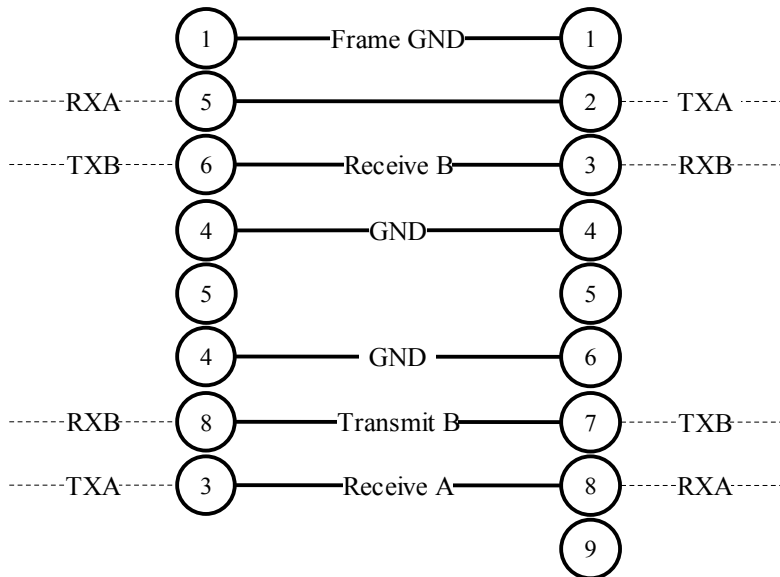
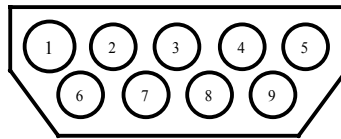
Note: For a true RS422 connection, you can use an adapter made by KK Systems (Part Number K422-99). This adapter connects to the RS232 port on the PC and provides an RS422 connection on the other side. To connect the K422-99 to the NUGGET, use a standard RS422 cable (See wiring of the standard RS422 cable). A true RS422 connection allows for a better connection and longer cables.

14.1.3 Wiring of the Nugget RS422-Mac Cable

CONTROLLING DEVICE
Mac DIN8-M
Front View



CONTROLLED DEVICE
(Nugget) DB9-M
Front View



14.1.4 Wiring of the DB-25 Audio Connector

The Nugget-Pro has a DB-25 audio connector with the following pinout:

Pin#	Signal Description	Pin#	Signal Description
1	No Connection	14	No Connection
2	No Connection	15	Ch 5 analog
3	Ch 6 analog	16	Ch 5 & 6 analog GND
4	Ch 3 analog	17	Ch 4 analog
5	Ch 3 & 4 analog GND	18	Ch 1 analog
6	Ch 2 analog	19	Ch 1 & 2 analog GND
7	IEC-958 plus	20	IEC-958 minus
8	IEC-958 GND	21	Ch 5 & 6 plus
9	Ch 5 & 6 minus	22	Ch 5 & 6 GND
10	Ch 3 & 4 plus	23	Ch 3 & 4 minus
11	Ch 3 & 4 GND	24	Ch 1 & 2 plus
12	Ch 1 & 2 minus	25	Ch 1 & 2 GND
13	No Connection		

- Analog audio is unbalanced (300mV).
- Digital audio is balanced (XLR compatible)
- The audio breakout cable is manufactured by Hosa part number DTM-803, it will provide 3 pairs of AES/EBU on XLRs 1,2,3 and 3 pairs of unbalanced analog channels for monitoring purposes on XLRs 5,6,7 (two unbalanced analog audio channels per XLR. Pin1=GND, pin2=left, pin3=right).

15 Specifications

15.1 Interface

RS-422 Serial: Differential 0 to +5 Volts

RS232 Serial: 2U versions only used for Debug purposes using a Null Modem Cable –8V to +8V.

Ethernet: Gigabit (older units were shipped with 100BT)

15.2 Audio

Analog: 6 unbalanced –10dB (DB-25)

Digital: 3 pairs of AES/EBU (DB-25)

Digital: IEC-958: AC3 encoded output on BNC

Digital: Embedded on SD-SDI and HD-SDI BNC connectors

15.3 Video

Analog: Composite output on BNC

Analog: YPbPr or RGB on DVI-I connector

Analog Sync: Bi-Level or Tri Level Sync on BNC

Digital: DVI Digital on DVI-I connector

Digital: SD-SDI on BNC connector

Digital: HD-SDI on BNC connector

15.4 TimeCode

Analog: LTC IN, accepts signals from 1Vpp to 2Vpp centered at 0V. Signals below 1Vpp will not be read properly.

Analog: LTC OUT, 1Vpp

Digital: Embedded on HD-SDI BNC connector.