TECHNICAL NOTE

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DMI INTERFACE MODULES

INSTALLATION, CONNECTIONS AND SETUP NOTES

INSTALLATION

Orange Box racks and S series mixers are normally supplied without DMI cards installed.

Installation is straightforward. First TURN OFF MAINS POWER to the host unit.

Remove the blanking panel(s) and 4 fixing screws (retain these for use with the DMI module).

The card guides are at the top of the module. Slide card in and secure with 4 fixing screws.

Note the mode of the Madi-Cat5 card has to be set BEFORE installation (see notes below).

Note use of the left and right slots in Orange box can affect clocking (see notes below)

Clocking arrangements for digital modules in Orange Box

Note that the position of modules in the Orange box chassis can determine the clock arrangement.

The chassis is hard-wired to send word clock from the left slot to the right slot (unless an external clock is connected to the word clock input BNC and selected in software).

This means the incoming (embedded) clock to the digital DMI module in the left slot (DMI 1/master) is passed to, and output from (again embedded), the digital DMI module in the right slot (DMI 2/slave). In effect, the system connected to the left slot is clock master and the system connected to the right slot is clock slave.

Where an external clock is connected to the Orange Box, this is sent to DMI modules in both slots.

Refer to the Orange Box manual for full clock setup details. See Digico website manuals download page.

The above does not apply to left and right slots in S-series mixers, where clock sources are software controlled.

ADC & DAC features

ADC card is a line level card only. There is no microphone amplifier or phantom power available.
S21 has no gain control function for these inputs (only digital trim). Maximum input level +22dBu

DAC card is line level only. Maximum output level +22dBu (Digital Full Scale)

See below for connection details

AES features

AES inputs are provided with sample rate conversion (SRC) by default and will support inputs from 44K to 96K irrespective of the mixer system rate.

AES outputs are synchronised to the mixer system clock.

See below for connection details

MADI CAT 5 PORT MODE SETUP

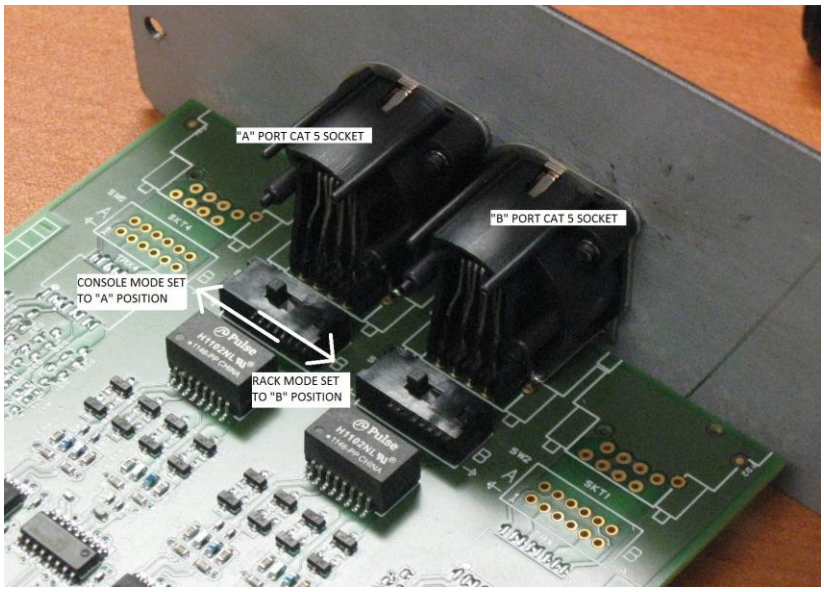
The Madi-C module is intended for use with Digico audio over Cat 5 devices only. This is NOT Ethernet. It must be setup individually on both ports for the correct operating mode, prior to the module being inserted.

See picture for switch setting. Note there are separate switches for the 2 ports.

Console Mode: This is sets the port connection to match a console or mixer connection. This is used if the remote connection is to SD-series rack (e.g. D-Rack or D2-Rack) This would be the normal setting for a DMI module installed in a mixer, when connected to rack.

Rack Mode: This is sets the port connection to match a rack type connection. This is used if the remote connection is to a console. It is important to understand this mode could be used in a console if the other connection is also to a console.

It is not possible to send audio between 2 DMI devices if BOTH are set to the same mode.



Please refer to Technical note TN227 for details of the Cat 5 connection specifications for Digico MADI over Cat 5. It is important note this is NOT Ethernet and therefore typical computer network considerations may not apply.

MADI BNC PORT MODE

This port is normally configured for 64 channels for standard madi (32 channels S-Mux @ 96K). It is compatible with Digico Racks if installed in a mixer, which will auto detect what is present externally.

AVIOM A-net® PORT

This includes sample rate conversion, and will operate at 48KHz (A-net standard) with the mixer system set for 96KHz.
Stereo link switches marked 1-8 link output channel pairs 1-2, 3-4, 5-6 etc.

DANTE® PORT

The Dante card will operate as a 64 channel IO at 48K and 32 channel at 96K. It is provided with main and secondary (backup) Gigabit Ethernet ports for connection to the Dante network.

All control and configuration of the Dante interface is done externally by the Audinate control software. A separate control computer must be provided to do this.

In S21, the Dante card can be selected as the mixer system clock source or the Dante network can be set to use the mixer as the network system clock (in the Audinate system software). Refer to notes above regarding clocking when used in Orange Box.

HYDRA-2® PORT

The Hydra-2 card will operate as a 56 channel IO at 48K and does not operate at 96K. It is provided with primary and secondary ports for connection to the Hydra2 network.

The Hydra2 DMI card can be supplied with either Single Mode or Multimode LC optical connections. These must be specified at the time of order.

Currently the Hydra2 card must be selected to run from the system clock, refer to the mixer or Hydra2 manual.

All control and configuration of the DMI Hydra2 interface is done externally by connection to the appropriate Calrec module and Calrec HID control software. Please refer to Calrec Hydra2 Digico Orange Box Interface document ref 926-216 for full information.

See
http://calrec.com/wp-content/themes/calrec/pdf/Orangebox%20Installation%20(926-216%20Iss2).pdf
Copy/Paste the above address into your browser

OPTOCORE ® PORT

The Optocore card is available with HMA (expanded beam), Neutrik OpticalCON Duo or ST optical connectors. Refer to TB101 (on Digico Website) for optical cable specifications. As standard it is multimode operation, optionally it can be supplied for single mode use.

Note there are 2 standard for connection to OpticalCON or LC cabling. As standard, the DMI is parallel connected. This can be readily re-arranged within the connector if required.

The Optocore card can be configured to support any number up to a maximum of 128 channels at 48K and 64 channels at 96K.

Refer to the Orange box manual for the off-line setup procedure. The module must be pre-configured prior to use. Currently S-Series mixers do not support the operation of Optocore DMI. Note Orange Box cannot be configured to control a Digico SD-Rack over madi from an Optocore connection.

The normal sync arrangement for the Orange box applies. If the module is used in the right side of the chassis, it receives external clock. In this case note that, in turn, this will then become clock master for the connected Optocore network (in a similar manner to connecting an external word clock to a Digico SD-series rack).

WAVES SoundGrid ® PORT

The Waves card will operate as a 64 channel IO at 48K and also 64 channel at 96K.

It is provided with 2 Gigabit Ethernet ports for connection to the SoundGrid network. These act a 2 port switch allowing simultaneous connection, for example, to a control PC and Waves SoundGrid server.

All control and configuration of the Waves interface is done externally by Waves control software. A separate control computer must be provided to do this. Note S series mixers cannot run Waves software.

In S series mixers, the Waves card can be selected as the mixer system clock source or the SoundGrid network can be set to use the mixer as the network system clock (in the Waves system software). Refer to notes above regarding clocking when used in Orange Box.

MULTI-PIN CONNECTOR PINOUTS

The DMI module range use 25 way “D” connectors, Female on the module (Male required on the connecting cable). The pins connections are as follows.

Analogue inputs and outputs

Sorted by pin

Function	pin
8+	1
0	2
7-	3
6+	4
0	5
5-	6
4+	7
0	8
3-	9
2+	10
0	11
1-	12
nc	13
8-	14
7+	15
0	16
6-	17
5+	18
0	19
4-	20
3+	21
0	22
2-	23
1+	24
0	25

Sorted by function

Function	pin
0	2
0	5
0	8
0	11
0	16
0	19
0	22
0	25
1-	12
1+	24
2-	23
2+	10
3-	9
3+	21
4-	20
4+	7
5-	6
5+	18
6-	17
6+	4
7-	3
7+	15
8-	14
8+	1
nc	13

AES-EBU combined in/out

Sorted by pin

Function	pin
4out+	1
0	2
3out-	3
2out+	4
0	5
1out-	6
4in+	7
0	8
3in-	9
2in+	10
0	11
1in-	12
nc	13
4out-	14
3out+	15
0	16
2out-	17
1out+	18
0	19
4in-	20
3in+	21
0	22
2in-	23
1in+	24
0	25

Sorted by function

Function	pin
0	2
0	5
0	8
0	11
0	16
0	19
0	22
0	25
1in-	12
1in+	24
1out-	6
1out+	18
2in-	23
2in+	10
2out-	17
2out+	4
3in-	9
3in+	21
3out-	3
3out+	15
4in-	20
4in+	7
4out-	14
4out+	1
nc	13

Pinout and connection Notes:
0 = earth/ground or screen/shield nc = not connected + = phase/hot - = antiphase/cold

Analogue connections for input and output are connected the same, as shown
Analogue connections for channels 1-8 shown, channels 9-16 follow the same pattern (1 = 9, 2 = 10 etc.)

AES connections are shown as 4 stereo (2 channel) connections, equivalent to channels 1-8
AES connections for stereo connections 1-4 (ch 1-8) shown, connections stereo 5-8 (ch 9-16) follow the same pattern (1 = 5, 2 = 6 etc.)