

## **PRODIGY.MC - System Build 25 & globcon - Version 1.5.0**

System Build 25 and globcon version 1.5.0 introduce several new features:

- Operating Modes: 'Show' and 'Configuration' via globcon
- Snapshot: persistent storage and recall from the front panel
- License Option: Remote Control - EMBER+
- License Option: Remote Control - OSC



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### **NOTE**

globcon 1.5.0 requires PRODIGY.MC System Build 25 installed.

### **Show Mode - Configuration Mode**

globcon version 1.5.0 introduces two new operating modes:

- Show Mode
- Configuration Mode

The Show Mode allows safe operation with snapshot recall keeping the device in a coherent status.

The Configuration Mode allows to prepare the device for Show Mode and to modify the 'Configuration Settings'.

Configuration settings are the portion of PRODIGYs data structure which is snapshot 'transparent', meaning that it is not changed when a snapshot is recalled in Show Mode.



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### **NOTE**

The operating mode is a device status, not a globcon status. At startup of the device 'Show Mode' will always be active.

### **Configuration Settings**

- Group membership

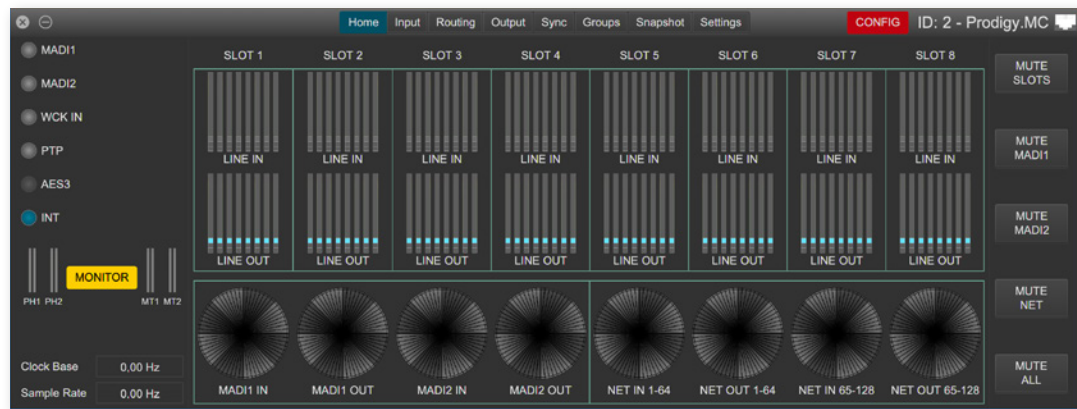
### Comparison

|                                      | Show Mode          | Configuration Mode |
|--------------------------------------|--------------------|--------------------|
| Snapshots                            |                    |                    |
| create / store                       | yes                | yes                |
| duplicate                            | yes                | yes                |
| delete                               | yes                | yes                |
| recall                               | yes (if compliant) | yes *              |
| lock                                 | yes                | yes                |
| conform                              | yes                | yes                |
| Edit snapshot Data Set and Scope Set | yes                | no                 |
| Change Configuration Settings        | no                 | yes                |

\* recall compliant and non-compliant snapshots but always with full Scope Set and intrinsic Configuration Settings (the entire data structure = total device recall).

### Operating Modes - Switch-over

Configuration / Show Mode is toggled in globcon with a click on the button 'SHOW' / 'CONFIG' in the main window's upper bar of the PRODIGY device plugin. Relevant warnings pop up when changing the mode.



When the mode is changed from Configuration to Show, globcon will automatically offer the opportunity to conform non-compliant snapshots.



### NOTE

The operating mode is a device status, not a globcon status. At startup of the device 'Show Mode' will always be active.

Snapshots are divided in two different lists:

- the upper one containing the snapshots 'recently' got non-compliant, due to the settings change happened during the last Configuration Mode session.
- the lower one containing non-compliant snapshots even before.

Non-compliant snapshots will be listed but won't be recallable once back in Show Mode.



## NOTE

Locked snapshots cannot be modified or conformed.

### Snapshots - Front Panel

Snapshots are now stored inside the device and can be recalled from the local display at the front panel of the device or via globcon.

| # | Name        | Note                    | Author    |
|---|-------------|-------------------------|-----------|
| 1 | Snapshot #1 | Initial Data - 44.1 kHz | christian |
| 2 | Snapshot #2 | Initial Data - 48 kHz   | christian |
| 3 | Snapshot #3 | Coffee break            | christian |

Each snapshot which is created in globcon will be stored into the device.

As a snapshot can be stored within a globcon project, it is possible to reconfigure a device including snapshots via 'Push' function from globcon.



## NOTE

Only compliant snapshots are listed and available for recall.

### Snapshots - Compliance

|               |  |
|---------------|--|
| compliant     | Snapshot Data Set matches the Configuration Settings of the device.  |
| non-compliant | Snapshot Data Set does not match the Configuration Settings of the device. Conform procedure required for recall in Show Mode or recall with full Scope Set in Configuration Mode, thus changing the Configuration Settings. |

### Snapshots - Conform

To conform a non-compliant snapshot with the current Configuration Settings, the following procedures are performed:

- Updates of Group memberships



### NOTE

Conforming a non-compliant snapshot is possible in both operating modes.

### Snapshots - Import / Export

Export

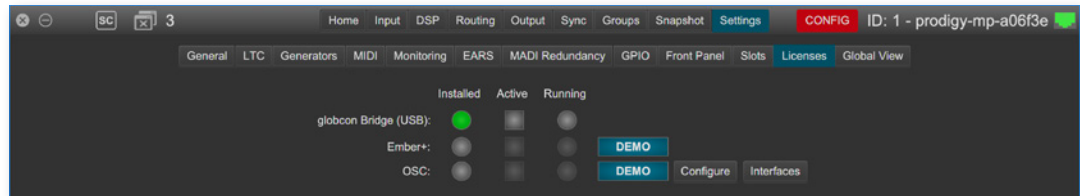
- globcon offers the possibility to export snapshots and save them in a separate file (right-click on the device icon).
- All snapshots are exported including their intrinsic Configuration Settings.

Import

- Imported snapshots are checked for compliance and listed accordingly.
- Non-compliant imported snapshots must be conformed if recalled in Show Mode.
- An imported non-compliant snapshot shall be recalled in Configuration Mode to align the current Configuration Settings to the intrinsic ones contained in that snapshots.

### License Option: Remote Control - EMBER+

EMBER+ offers control of the configuration, the settings of the Microphone Preamps and the Routing Matrix including channel labeling, as well as monitoring the status of the device.



Remote Control - EMBER+ is a paid license option.

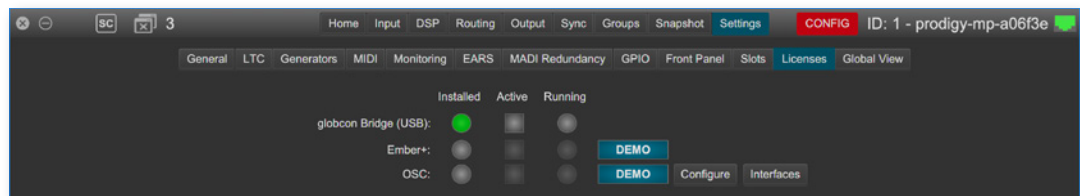
For testing purposes a demo session can be initiated after startup to activate the feature for 30 minutes.

To acquire a full license please contact your local DirectOut representative.

EMBER+ service: <MGMT IP address>, Port 9000

### License Option: Remote Control - OSC

OSC (Open Sound Control) offers native control of device parameters via 3rd party software or hardware. Each single OSC action can be defined via globcon and can be stored persistently in the device.



Remote Control - OSC is a paid license option.

For testing purposes a demo session can be initiated after startup to activate the feature for 30 minutes.

To acquire a full license please contact your local DirectOut representative.

## PRODIGY.MC - System Build 22

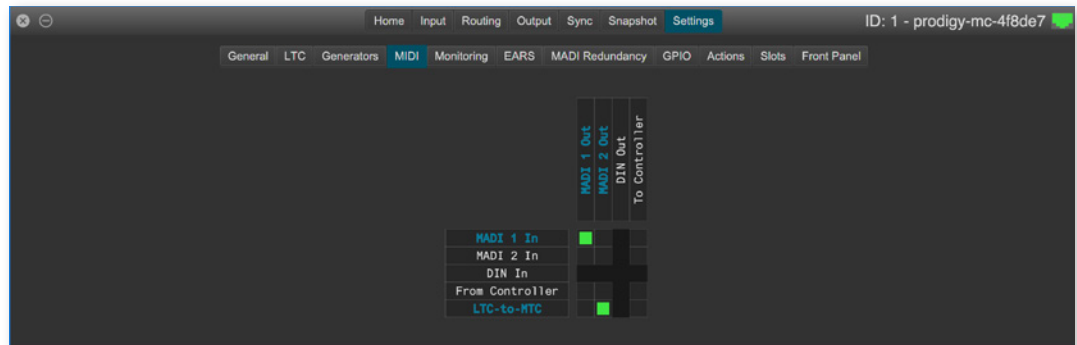
System Build 22 introduces several new features:

- MIDI-Matrix (incl. support for MIDI-over-MADI)
- LTC to MTC converter
- Sine wave, Pink noise and white noise generators
- FastSRC™ for MADI and audio network I/O
- EARS™ (Enhanced Automatic Redundancy Switching)
- Levelmeter

### MIDI Matrix

The MIDI matrix allows to route MIDI data across different interfaces. It also enables ‚MIDI-over-MADI‘ (embedded into a MADI signal, user bit of channel 56) which is used for remote control of legacy devices such as the DirectOut ANDIAMO series.

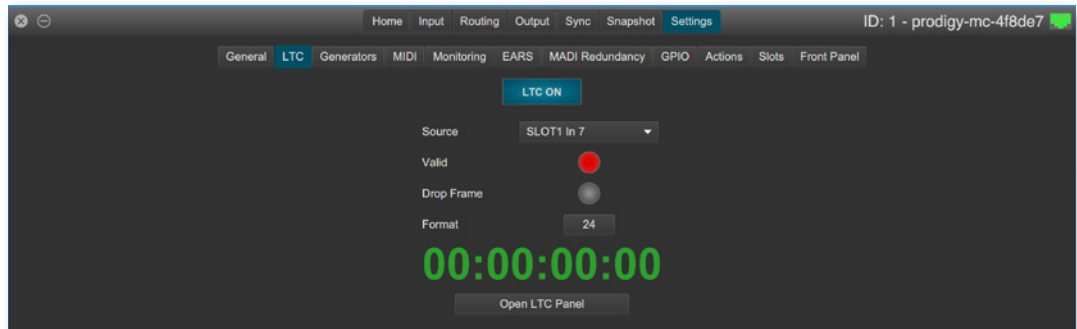
An ‚LTC to MTC‘ converter offers the chance to synchronize external equipment over MTC (MIDI Timecode) with an LTC source (Linear Timecode).



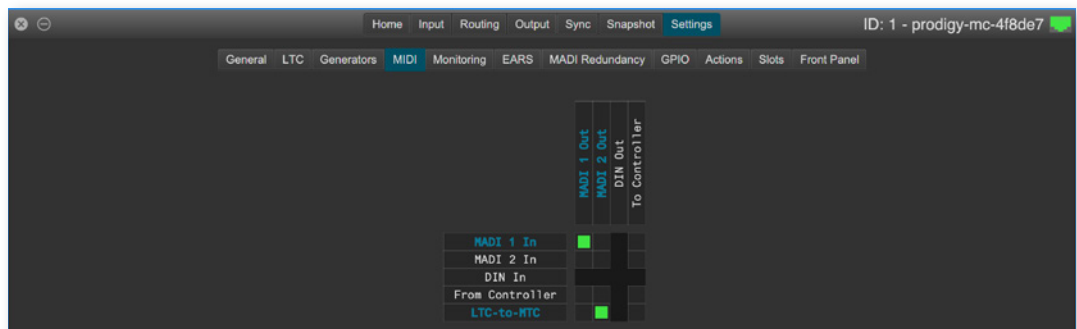
Controller is the globcon instance connected via network.

## LTC to MTC Converter

PRODIGY.MC can read incoming LTC (Linear TimeCode) from any physical input to trigger events, for display or synchronization.



The LTC-to-MTC converter now offers the chance to output the incoming LTC to a device expecting MTC (MIDI TimeCode).



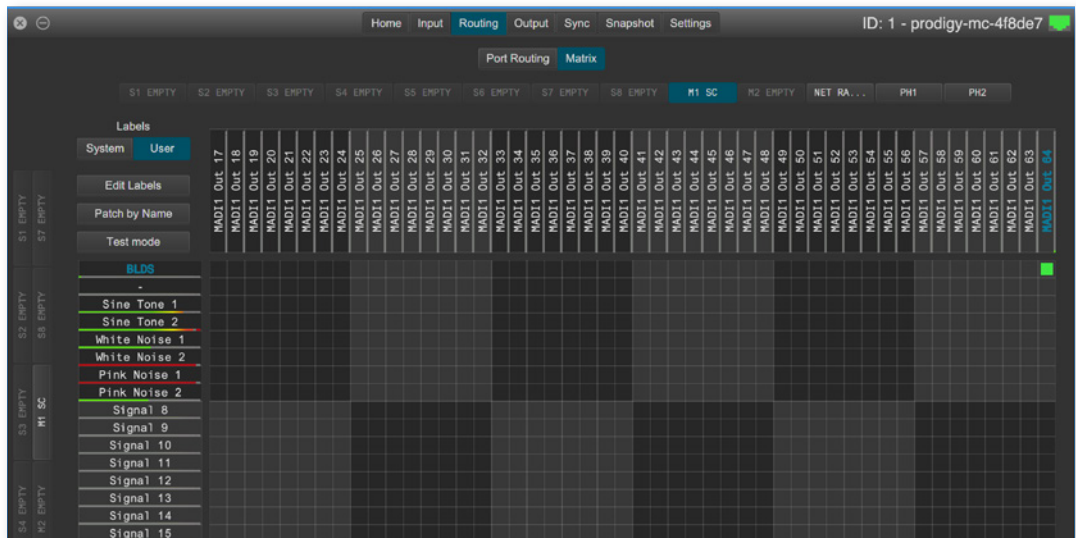
In this example LTC is read from SLOT1 Input channel 7.  
The LTC is embedded as MTC into MADI 2 output and the embedded MIDI signal from MADI 1 input is routed to MADI 1 output.

## Generator

Integrated signal generators are offered as sources in the tabs ,Routing' and ,DSP Routing'.

Types:

- BLDSTM - Buffer Loop Detection Signal
- Sine Tone (2)
- White Noise (2)
- Pink Noise (2)



BLDSTM may be used to trigger remote devices deploying EARS™ (Enhanced Automatic Redundancy Switching).

The generators for sine tones, white noise and pink noise are adjustable (level & mute) in the tab ,Settings'. The sine tone generators can be tuned individually.



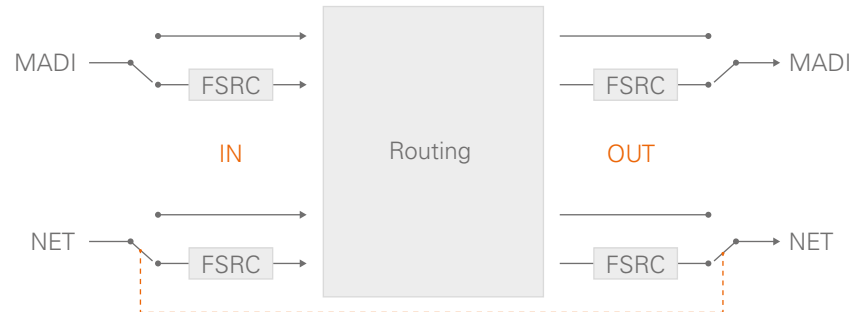
## NOTE

The generators are offered in pairs and their signals are uncorellated.



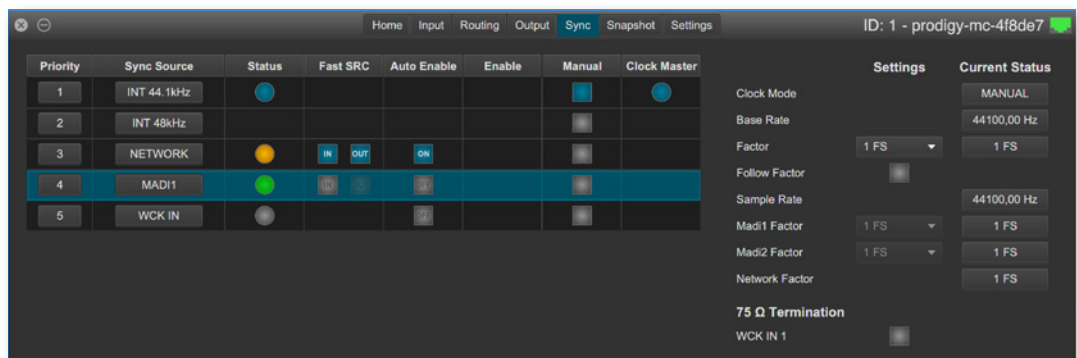
### FastSRC™

The Fast SRC™ is a low latency sample rate converter that is available for the MADI I/Os and the audio network I/O.



For the audio network I/O the FastSRC™ may be activated for input and output together only.

The settings for the FastSRC™ are in the tab 'Sync' or accessible on the front display of the device ('CLOCK') or via browser control.



### NOTE

If an input is used as clock source for the device it is neither necessary nor recommended to activate the FastSRC™.



### NOTE

Since the trigger signal for EARSTM is monitored before the FastSRC™ the use of BLDS™ is possible with the FastSRC™ activated.

**Channel Counts**

The number of available hardware input & output channels depends on the internal sample rate of the device.

Device at 1FS

| Input    | Max I/O | 1FS | 2FS* | 4FS* |
|----------|---------|-----|------|------|
| MADI     | 64      | 64  | 32   | 16   |
| DANTE.IO | 64      | 64  | 32   | 16   |
| RAV.IO   | 128     | 128 | 64   | 32   |

Device at 2 FS

| Input    | Max I/O | 1FS* | 2FS | 4FS* |
|----------|---------|------|-----|------|
| MADI     | 32      | 32   | 32  | 16   |
| DANTE.IO | 64      | 64   | 32  | 16   |
| RAV.IO   | 64      | 64   | 64  | 32   |

Device at 4 FS

| Input    | Max I/O | 1FS* | 2FS* | 4FS |
|----------|---------|------|------|-----|
| MADI     | 16      | 16   | 16   | 16  |
| DANTE.IO | 32      | 32   | 32   | 16  |
| RAV.IO   | 32      | 32   | 32   | 32  |

\* FastSRC™ active

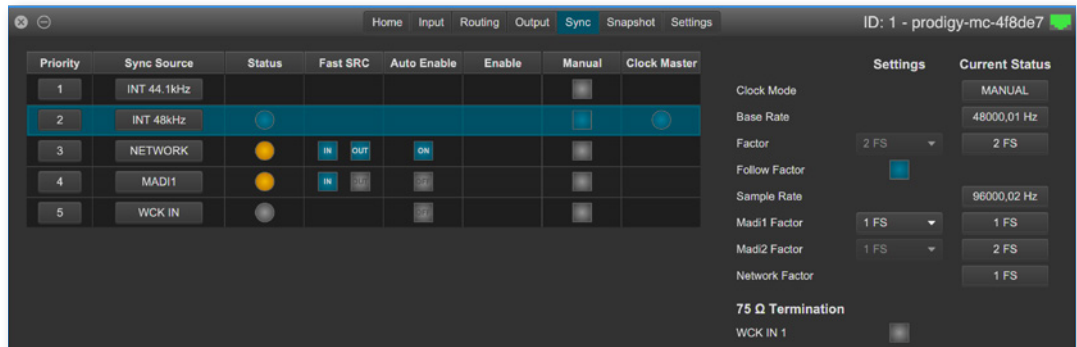


**TIP**

The I/O channel count of converter slots (analog / AES3) is independent from the sample rate of the device and the state of the sample rate converter (AES4.SRC.IO) and therefore always at full-channel count.

### Scaling Factors - MADI at higher sample rates

The input of a MADI signal will switch to 2 FS operation automatically when a 96k Frame signal has been detected. With 48k Frame signals no distinction is possible between 1 FS or 2 FS or 4 FS - so the scaling factor has to be set manually.



In this example the device operates at 2 FS (96 kHz) and MADI 1 input is receiving a 48k Frame signal. The input scaling factor is set to 1 FS and the Fast SRC is active for MADI 1 input and inactive for the MADI 1 output.

Result:

- channels 1- 32 of the MADI input are sample rate converted to 96 kHz
- 32 channels at 96 kHz are output at MADI 1 output

### About FastSRC™

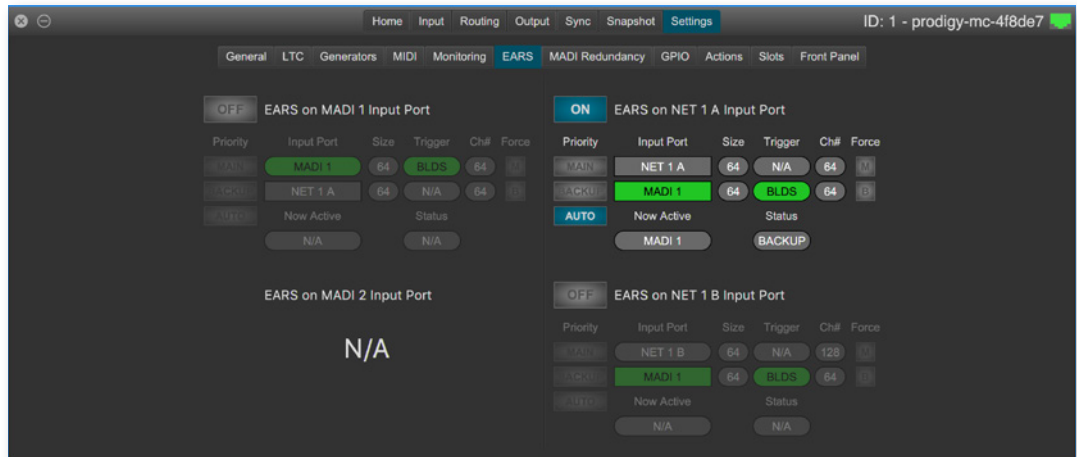
DirectOut's FastSRC™ (FSRC) is a low latency sample rate converter for when two digital interfaces of a device must work in different clock domains.

FastSRC™ combines good sound quality with very low latency of less than 0.15 msec and is invaluable in live sound applications and a 'life-saver' in critical situations.

High-end sample rate conversion requires noticeable processing time, so for the very best audio quality we recommend DirectOut's dedicated SRC products such as the RAV.SRC.IO, DANTE.SRC.IO or MADI.SRC.

## EARS™ - Enhanced Automatic Redundancy Switching

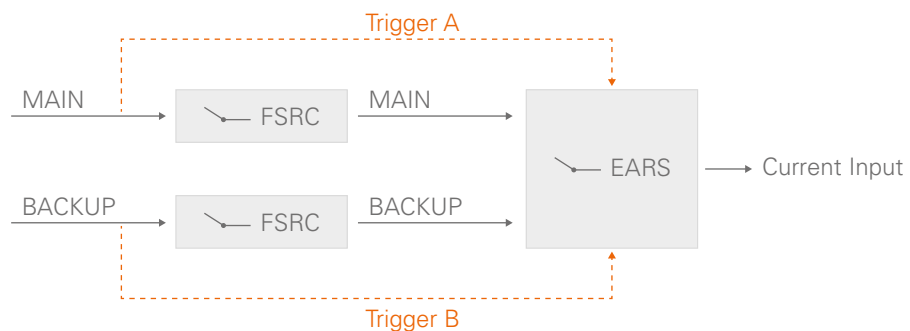
EARS™ is a combination of DirectOut's successful BLDS™ technology and pilot-tone based switching. A logic monitors a trigger signal contained in certain audio channels of the audio network and MADI inputs.



Two kinds of trigger signals are supported:

- BLDS™ (generated by the BLDS™ Generator)
- Pilot tone (audio signal with a level higher than -40 dBFS).

The trigger signal is monitored at dedicated channels ('Ch#') of the native signal - i.e. at the original sample rate - before the Fas SRC™. The EARS™ logic acts before the routing. Thus the result is used for all subsequent patches in the routing matrix.



Switching by BLDS™ trigger is immediate (between two samples). The Pilot tone is evaluated for 10 ms before switching is triggered.



### NOTE

Using different trigger signals for the same EARS™ logic is not recommended.

### Priorities & Priority Modes

To decide which input source is used as output signal there are some choices.

Ranking:

- BLDS™ > pilot tone > no trigger signal

Three modes define the revert behavior, when a trigger signal ,returns' after failure.

| Mode   | Behavior *   |
|--------|--|
| AUTO   | Switch-over occurs only when a trigger failure is detected and a valid trigger signal is detected on the other port. |
| MAIN   | MAIN is always selected if the trigger signal is detected on both ports.   |
| BACKUP | BACKUP is always selected if the trigger signal is detected on both ports.   |

\* required condition: identical trigger signals, otherwise a BLDS™ will override a pilot tone.

### Force Mode

To override automatic switching temporarily, the source for the output can be forced to MAIN or BACKUP. The selection becomes available once EARS is activated.

Force Mode can be helpful if you want to stay with one system as a source while testing the second one.

### Input Modes

EARS is operating in chunks of 64 channels at 1 FS.

Audio network modules dealing with 128 channels, such as the RAV.IO, are split into two logical units NET #A and NET #B.

Two input modes are offered for the MAIN port of audio network modules:

- MODE 1 - Different ports
- MODE 2 - First half / Second Half

Input Mode 2 divides the first 64 channels of a audio network module into two chunks of 32 channels each of, independent of the channel capacity of the particular module.



### NOTE

MADI ports are not available for EARS™ if MADI Redundancy is active.

**Example - 1 FS, NET 1 = DANTE.IO, NET 2 = RAV.IO**

| Module     | MODE | MAIN                  | BACKUP   |
|------------|------|-----------------------|--|
| DANTE.IO   | 1    | Dante (ch 1 - 64)     | MADI 1 (ch 1 - 64)<br>MADI 2 (ch 1 - 64)<br>NET 1A (ch 1 - 64)<br>NET 2B (ch 1 - 64) |
| DANTE.IO   | 2    | Dante (ch 1 - 32)     | Dante (ch 33 - 64)   |
| RAV.IO [A] | 1    | RAVENNA (ch 1 - 64)   | MADI 1 (ch 1 - 64)<br>MADI 2 (ch 1 - 64)<br>NET 1A (ch 1 - 64)<br>NET 2B (ch 1 - 64) |
| RAV.IO [B] | 1    | RAVENNA (ch 65 - 128) | MADI 1 (ch 1 - 64)<br>MADI 2 (ch 1 - 64)<br>NET 1A (ch 1 - 64)<br>NET 2A (ch 1 - 64) |
| RAV.IO [A] | 2    | RAVENNA (ch 1 - 32)   | RAVENNA (ch 33 - 64)   |
| RAV.IO [B] | 2    | n.a.                  | n.a.   |

**Example - Device operating at 1 FS**

| Input    | Factor | trigger signal ('Ch x') | signals available ('Size') |
|----------|--------|-------------------------|----------------------------|
| MADI     | 1FS    | ch 64                   | ch 1 - 64                  |
| MADI     | 2FS    | ch 32*                  | ch 1 - 32                  |
| MADI     | 4FS    | ch 16*                  | ch 1 - 16                  |
| DANTE.IO | 1FS    | ch 64                   | ch 1 - 64                  |
| DANTE.IO | 2FS    | ch 32*                  | ch 1 - 32                  |
| DANTE.IO | 4FS    | ch 16*                  | ch 1 - 16                  |
| RAV.IO   | 1FS    | ch 64 / 128             | ch 1 - 64 / ch 65 - 128    |
| RAV.IO   | 2FS    | ch 32 / 64*             | ch 1 - 32 / ch 33 - 64     |
| RAV.IO   | 4FS    | ch 16 / 32*             | ch 1 - 16 / ch 17 - 32     |

**Example - Device operating at 2 FS**

| Input    | Factor | trigger signal ('Ch x') | signals available ('Size') |
|----------|--------|-------------------------|----------------------------|
| MADI     | 1FS    | ch 64*                  | ch 1 - 32                  |
| MADI     | 2FS    | ch 32                   | ch 1 - 32                  |
| MADI     | 4FS    | ch 16*                  | ch 1 - 16                  |
| DANTE.IO | 1FS    | ch 64*                  | ch 1 - 32                  |
| DANTE.IO | 2FS    | ch 32                   | ch 1 - 32                  |
| DANTE.IO | 4FS    | ch 16*                  | ch 1 - 16                  |
| RAV.IO   | 1FS    | ch 64 / 128*            | ch 1 - 32 / ch 33 - 64     |
| RAV.IO   | 2FS    | ch 32 / 64              | ch 1 - 32 / ch 33 - 64     |
| RAV.IO   | 4FS    | ch 16 / 32*             | ch 1 - 16 / ch 17 - 32     |

\* FastSRC™ active

## Levelmeter

The refresh rate of the level metering can be adjusted to save valuable bandwidth when this is necessary (e.g. remote operation over WAN).

