

Dolby® E / D / D plus decoder

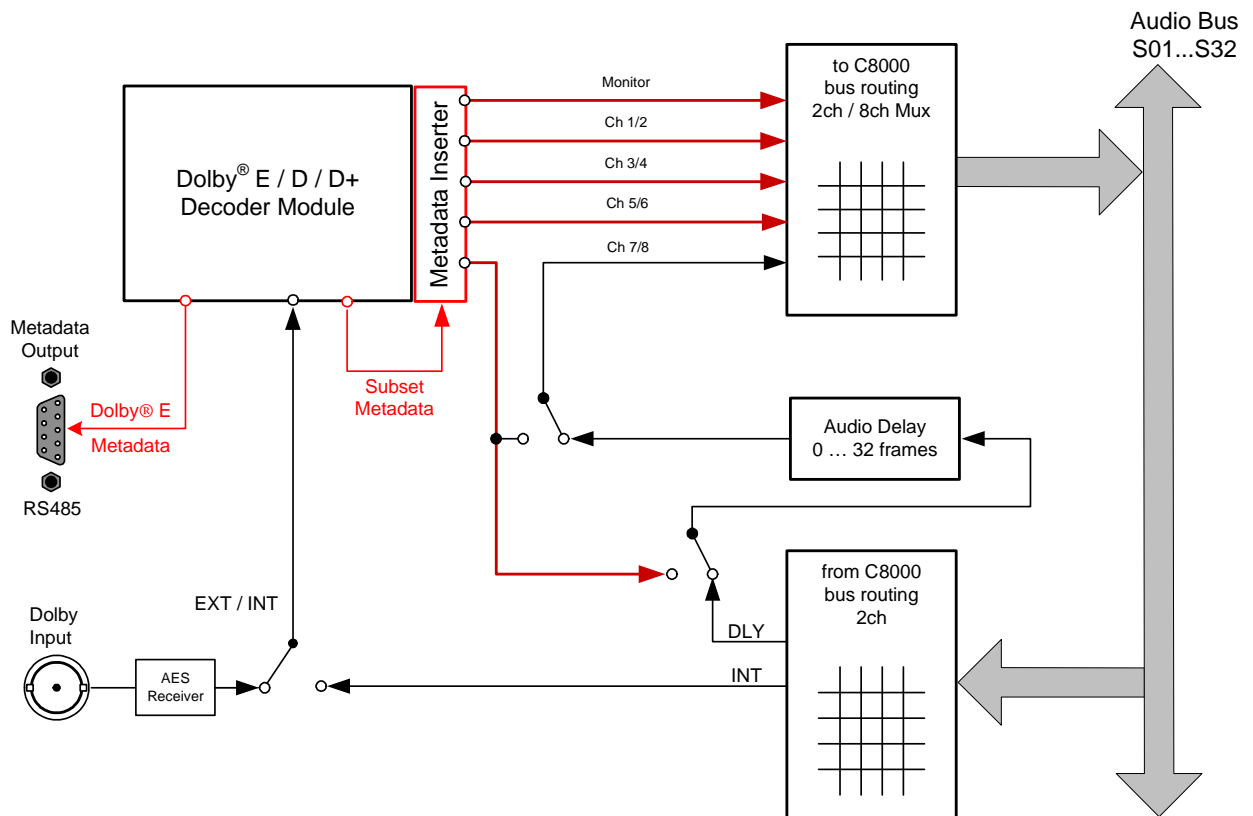
C8601

features

- Dolby® E, D, D plus decoder
- RS 485 RDDD-6 metadata output
- Unbalanced, asynchronous AES input for Dolby® E, D, D plus encoded signals
- 16 / 20 / 24 Bit audio data format
- Automatic format detection (Dolby® E, D, D plus, PCM)
- Automatic PCM pass through to Ch1/2 output
- Unique Dolby® metadata transport (inserted into the AES USER Bit)
- 2Ch Delay for PCM audio and / or metadata
- Program monitoring (down mix to mono, Lo/Ro, Lt/Rt)
- Program specific metadata display



block diagram



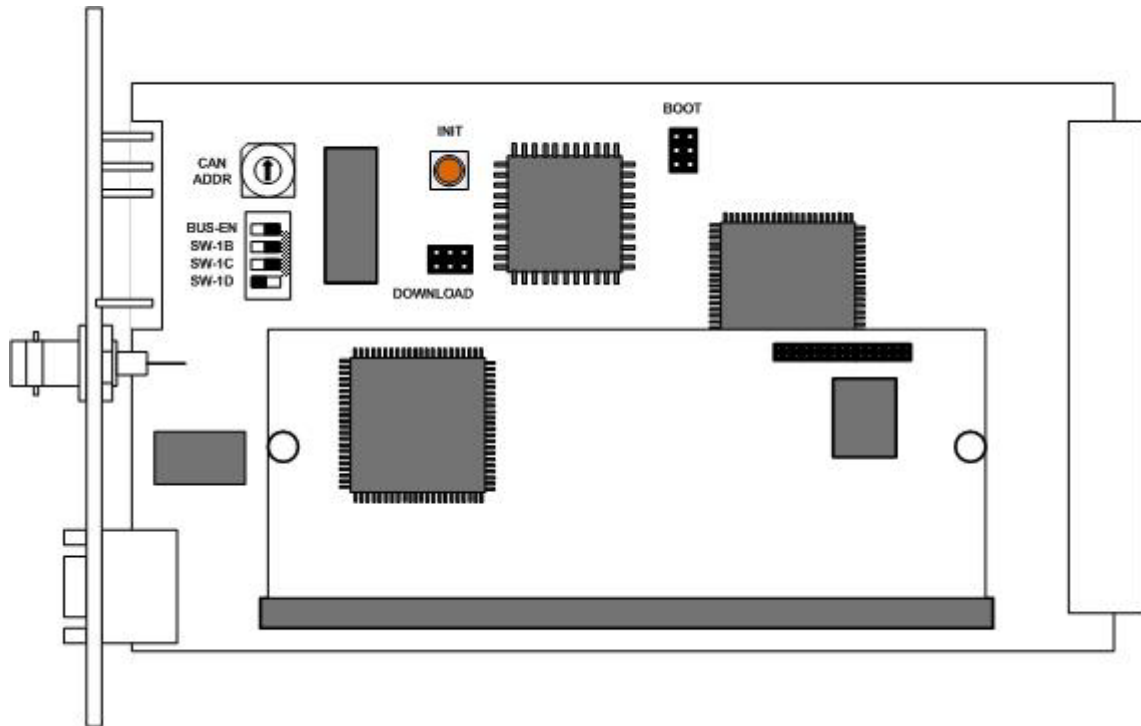
technical specifications

| | |
|------------------------|---|
| External input: | |
| connector | BNC |
| impedance | 75Ω |
| signal level | 0,1 ... 2,5V _{pp} |
| standard | AES 3, SMPTE 276M unbalanced |
| data format | 16, 20, 24bit |
| sample rate | 32 ... 48kHz |
| Input audio formats: | |
| Dolby E | 16, 20, 24bit streams 48kHz |
| Dolby Digital | 16 or 32bit streams 32 48kHz |
| Latency: | |
| Dolby E | 1 video frame |
| Dolby Digital | 32msec |
| PCM | < 10msec |
| Video synchronization: | external synchronization possible via C8830 (PAL, NTSC, HD) if Dolby E decoding must be frame accurate |
| Metadata output: | |
| format | Standard Dolby® Metadata stream (SMPTE RDD 6-2008) |
| baud rate | 115,2kbps |
| connector | Sub-D, 9-pin, male |
| pin assignment | |

| connector : | Metadata OUTPUT |
|-------------|-----------------|
| male | 9-pin D-Sub |
| 1 | GND |
| 2 | |
| 3 | Tx (+) |
| 4 | GND |
| 5 | |
| 6 | GND |
| 7 | |
| 8 | Tx (-) |
| 9 | GND |

| | |
|----------------------|-------------------------------------|
| Backplane connector: | ref. to DIN 41612, 64pin, a+b, male |
| Power supply: | +5V DC |
| Consumption: | approx. 500mA |
| Dimensions: | 3RU, 4HP, 160mmd deep (Euro Format) |
| Ambient: | 10°C to 40°C |
| Humidity: | 90%, non condensing |

Installation



Set the **CAN ADDR** rotary encoder to an address which is not in use by another module of a C8000 frame (for details regarding CAN addressing, see C8k system manual).

- BUS-EN** = **OFF** will disable the bus driver circuits on power up
- SW-1B** = **ON** enables the CAN “+16” address scheme to handle up to 32 modules
- SW-1C** = not used
- SW-1D** = not used

Important Note! If the module has an unknown bus configuration, you must set **BUS-EN=OFF**, before inserting the module into a C8000 frame. Otherwise you risk to disturbing other channels of the frame.

When you press the **INIT** button during power up, it will initialize the module parameters to factory default values.

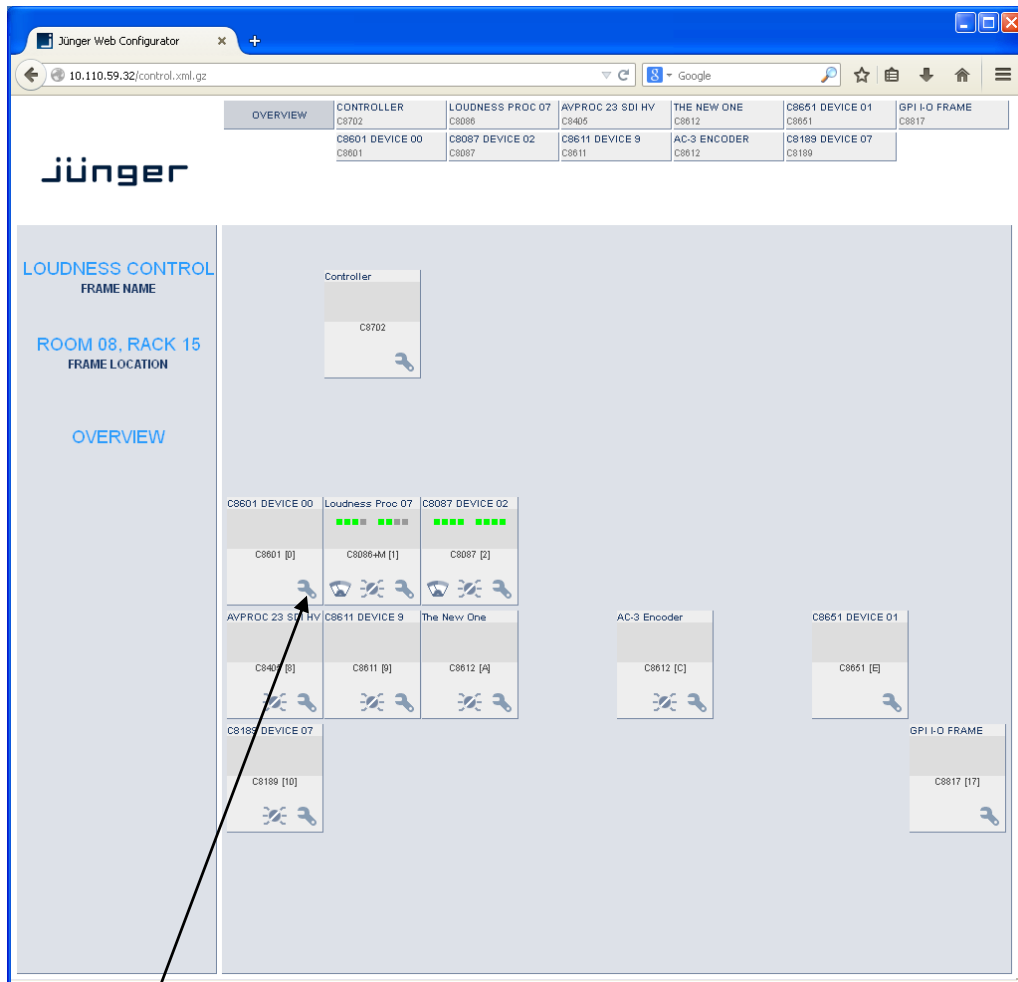
status LEDs

On the front panel are 3 status LEDs:

| | | |
|----------------|-----------------|--|
| STATUS | green | = OK |
| | red | = bad |
| | flashing | = module is in focus of the frame controller (under GUI control) |
| DOLBY D | green | = the decoder reads a proper Dolby D / D plus signal |
| | Off | = Dolby D decoding error (no Dolby D / D plus signal) |
| DOLBY E | green | = the decoder reads a proper Dolby E signal |
| | Off | = Dolby E decoding error (no Dolby E signal) |

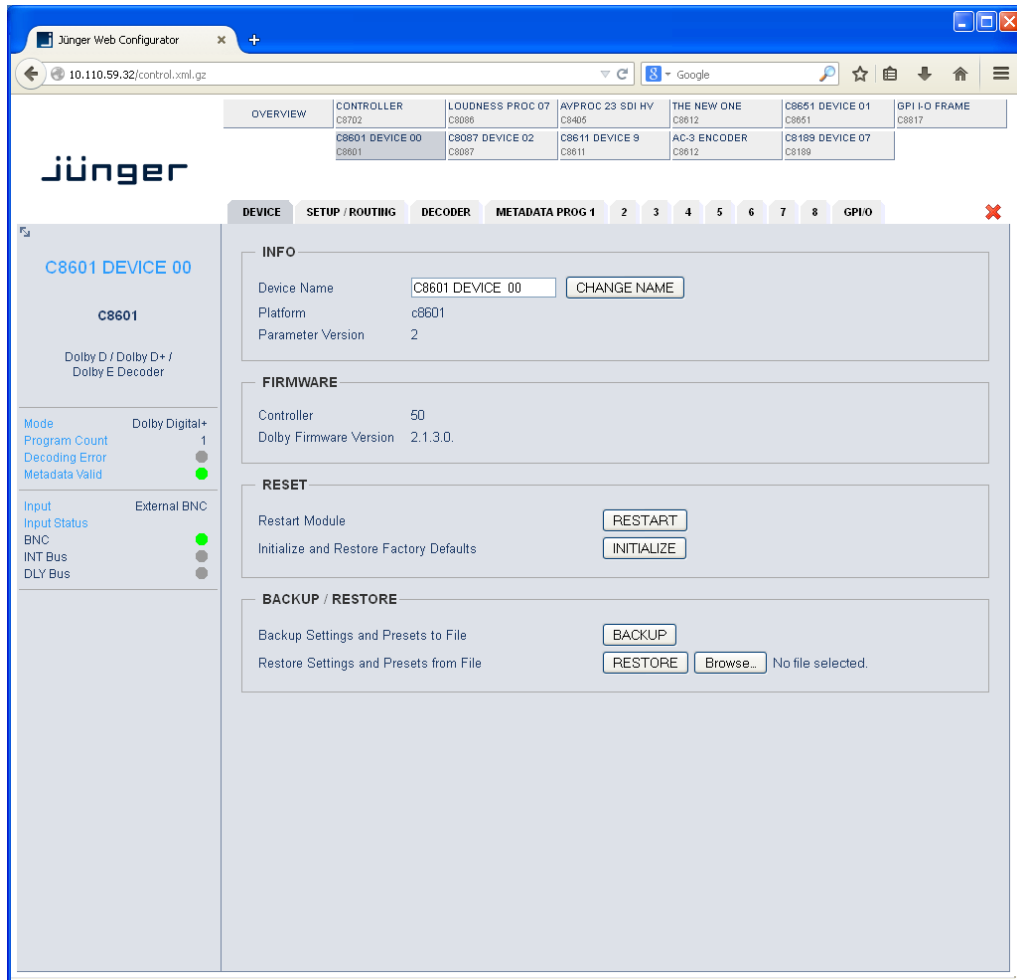
remote configuration via web interface

OVERVIEW :



Clicking on the ● spanner tool within the module graphics of the **C8601** will open the pages of that module.

DEVICE



INFO

Device Name You may assign a **16 digit name** to the module.
Platform [c8601]
 Hardware related descriptor
Parameter Version [2]
 Software related descriptor (represents the feature set)

FIRMWARE

Controller [50]
 Installed version of the module controller
Dolby Firmware Version [e.g. 2..1.3.0]
 Version of the Dolby OEM board firmware

RESET

Restart Module

<RESTART>

Pressing the soft button will warm start the module

Initialize and Restore Factory Defaults

<INITIALIZE>

Pressing the soft button, will clear the parameter memory and will initialize all parameters to their factory default values.

BACKUP / RESTORE

Backup Settings and Presets to File

<BACKUP>

Pressing the soft button will create an XML file that one may store on a PC.

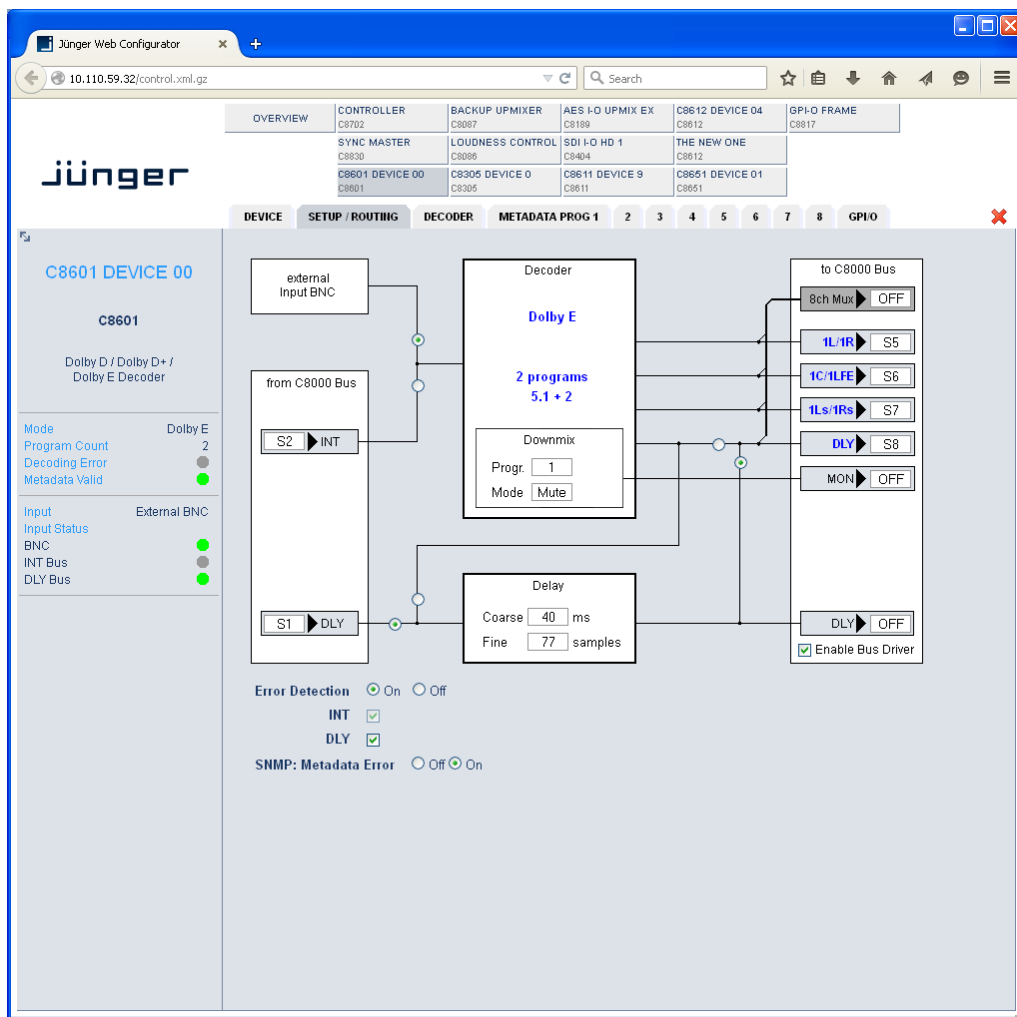
Restore Settings and Presets from File

<RESTORE> |

Pressing the soft button will upload a backup file that has been selected via soft button **<BROWSE>** and move the previously stored settings back to the module.

SETUP/ROUTING :

setup of the module and the audio bus routing



Dolby® E / D / D plus decoder

C8601

| | |
|---|--|
| External Input BNC | You may connect an AES signal to the BNC front panel connector that carries an encoded Dolby stream. |
| From C8000 System Bus | |
| INT | [S1 ... S32] Here you can select one bus to feed the decoder input. The radio button finally selects between this bus and the front panel BNC input. |
| DLY | [S1 ... S32] An extra delay input is provided for a 2ch PCM signal. The delay can be used to match the Dolby decoding latency for a PCM stereo program. It may also be used to delay subset metadata from the decoder output 7/8. (Subset metadata are attached to all PCM audio outputs of the decoder). |
| Decoder | [Dolby E / Dolby D / Dolby Digital + / PCM./ n.a.] Inside the Decoder box you will see the format of the incoming stream. In case of Dolby E, the number of programs and the respective program configuration.(e.g. 5.1 + 2) are shown. In case of AC3 or Digital plus you will get the channel mode of the encoded program (e.g. 3/2L). The example above shows a Dolby E stream containing 2 programs (5.1 + 2). |
| Important Note: If the input format of the decoder is PCM such signal will automatically be sent to the first output pair (Ch1/2), AKA PCM pass through. | |
| Downmix | The decoder offers a monitor function based on a downmix circuit. |
| Prog. | [1 ... 8] Depending on the stream that is currently decoded the function of the monitor block changes: You can pre-select the program number. |
| Mode | [Mute / Mono / Lo/Ro / Lt/Rt] You can mute the output or select the monitor mode here. |
| Delay | |
| Coarse | [0 ... 165] ms |
| Fine | [0 ... 240] samples |
| Important Note! The output 7/8 of the decoder or the output of the delay can be selected as ch7/8 for the 8ch Mux (multiplex) mode. | |
| to C8000 Bus | The outputs from the decoder can be assigned to the C8k audio busses. |
| 8ch Mux | You can send the 8 channels from the decoder in 8ch Multiplex mode via one audio bus line. |
| Enable Bus Driver | You can disable the output drivers by un-checking the Enable Bus Driver check box. |

Important Note! The bluish labels on the bus selectors represent the signal configuration of the decoder output lines. This depends on the actual program configuration of the decoded stream. Downstream equipment must be configured this way to receive the correct audio channels.

Error Detection

[On / Off]

The serial audio data from the frame bus can be monitored for proper positioning of an **Error-Flag**. A bad **Error-Flag** is an indication that there is disturbance upstream (input signal, input module).

The **Error Detection** can be turned **Off** and **On** for each input from the bus. You will see the status on the left hand side: “**Input Status**”.

A **grey** “LED” shows that the detection is disabled. While **green** is OK, **red** indicates an error condition.

The bus status as well as the external Input (BNC) status may be presented to external monitoring systems via **SNMP**. The frame controller summarizes such status information and generates **SNMP traps** for the frame as an entity or may activate GPOs (if a GPI/O module is installed). The **SNMP manager** may afterwards poll the “**modulesStatus**” for more detailed status information per input (see SNMP documentation for details).

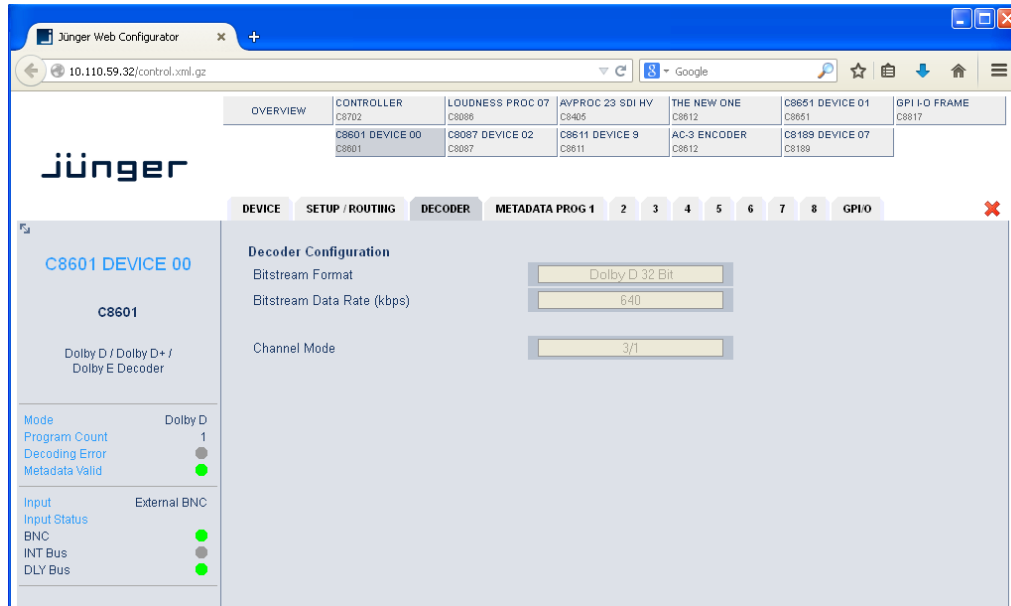
SNMP: Metadata Error

[Off / On]

The metadata error is part of the module status information presented via SNMP. To avoid unnecessary alarms you may disable this function in case the module is temporarily not in use.

DECODER:

display of general decoder parameters



Decoder Configuration

Bitstream Format

[Dolby E 16Bit / Dolby E 20 Bit / Dolby Digital / Dolby Digital +]
Shows the format of the decoded bit stream.

Display in case of Dolby Digital or Dolby Digital + :

Bit Stream Data Rate (kbps) [e.g. 240]

Channel Mode [e.g. 3/2L]

Display in case of Dolby E :

Program Configuration [e.g. 5.1 +2]

Frame Rate [e.g. 25 Hz (PAL)]

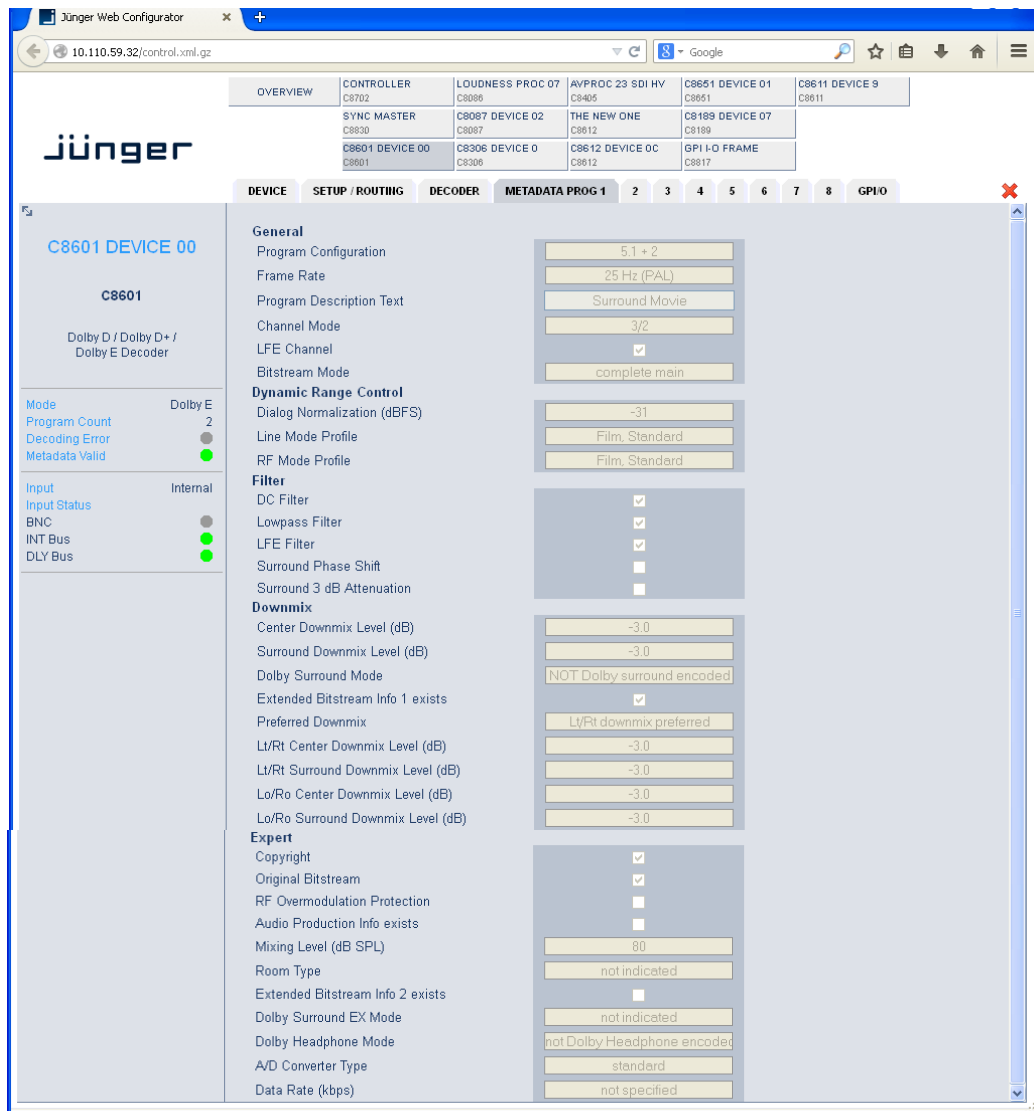
The Dolby metadata system is quite complex to describe in detail in a product manual such as this. If you are not familiar with it, we recommend you study the many publications from **Dolby Inc.** Especially the **Dolby Metadata Guide** is essential for understanding the parameters. For details please visit the Dolby web site:

<http://www.dolby.com/gb/en/professional/technology/landing.html>

We cannot guarantee that the link is active forever so you may browse other Dolby resources as well. Specifically concerning metadata we also recommend the SMPTE document RDD6-2008.

METADATA PROG x : display of program-specific Metadata

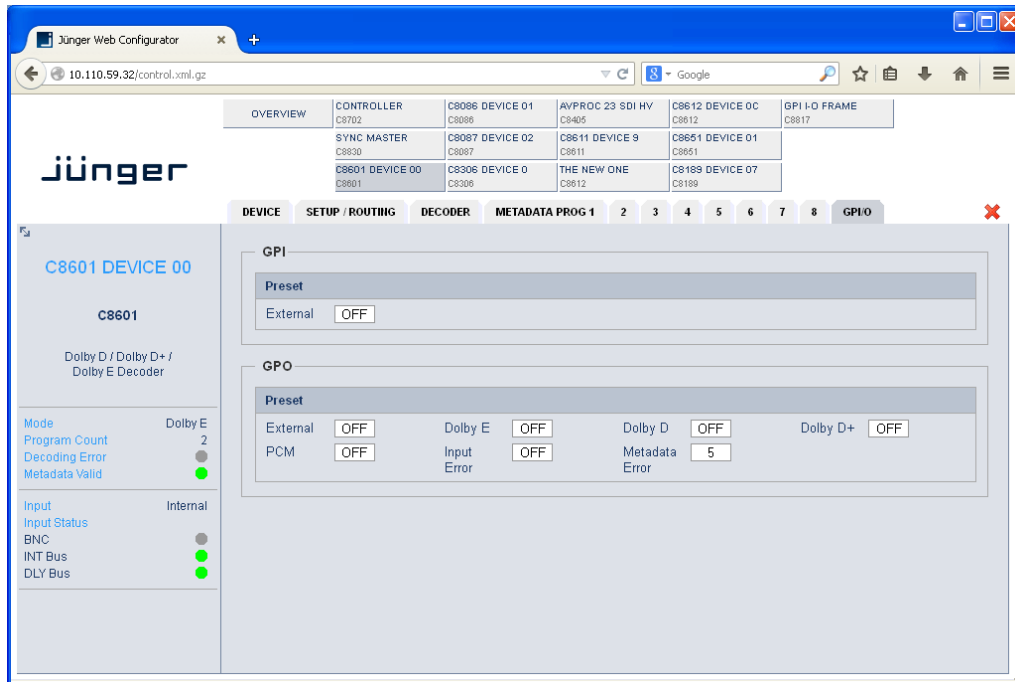
These Metadata values are informal and for display only, that's why the fields are grey and the content can not be changed. Depending on the bit stream format and program configuration the number of programs will vary. I.e. not all of the eight tab sheets must contain values.



The above example shows the metadata of the first program of a Dolby E stream that is encoded to transmit two programs 5.1 +2 (surround and stereo).

GPI/O :

You can assign a virtual **GPI number** to switch the input from internal bus to **External** (BNC).



GPIs

[OFF / 1 ... 127]

GPIs are useful if you want to recall settings remotely (e.g. by presets).

The C8k frame can handle **127** different **GPIs**. You must assign a unique number to the respective function. Such numbers will be generated by the **brc8x** Broadcast Remote Controller or by a **GPI/O** interface module **C8817**. If the **C8601** receives such a number over the internal CAN bus, it may switch over to the external input.

GPOs (Tallies)

[OFF / 1 ... 127]

GPOs may signal the status of a module through a **GPO** device. This allows for easy interconnection with more generic monitoring equipment. If an event occurs, the **C8601** puts the assigned number on the CAN bus so a **C8817 GPI/O** module or the **brc8x** may activate their tallies.

E.g. if a **Metadata Error** occurs the **C8601** puts the associated virtual **GPO number** on the CAN bus. The **GPI/O module** permanently listens for such numbers. If it reads such number it will engage the respective physical **GPO** (see **C8817** manual for details).