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C8611

Dolby[®] E encoder

features

- Dolby[®] E compliant Encoder
- 8 channels (up to eight programs)
- Audio input up to 24Bit, 48kHz
- 16 / 20Bit audio data format
- RS485 Metadata input
- Unique Metadata extractor to read Metadata inserted into PCM audio User Bits
- Metadata from C8000 internal audio bus, external RS485 input or presets
- Eight Metadata presets
- Dolby[®] Metadata display and editing
- Encoded output stream available on C8000 internal audio bus
- Encoded output stream available on unbalanced AES output
- Remote control (web interface) via C8702 frame controller





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technical specifications

External output: connector impedance signal level standard data format sample rate	B 7 1 1 4	BNC 75Ω 1V _{pp} AES 3, SMPTE 276M unbalanced 16, 20bit 48kHz					
Output audio formats: Dolby [®] E	1	16, 20bit streams, 48kHz Sample Rate					
Latency:	1	video frame					
Metadata input: format baud rate connector		Standard Dolby [®] Metadata stream (RS485) 115,2kbps Sub-D, 9-pin, female					
pin assignment		connector :	Metadata INPUT				
		female	9-pin D-Sub				
		1	GND				
		2					
		3	Rx (+)				
		4	GND				
		5					
		6	GND				
		7					
		8	Rx (-)				
		9	GND	J			
Backplane connector: Power supply:	re +	ef. to DIN 416 5V DC	612, 64pin, a+b, male				
Consumption:	approx. 600mA						

+5V DC approx. 600mA 3RU, 4HP, 160mmd deep (Euro Format) 10⁰C to 40⁰C

Humidity: 90%, non condensing

Dimensions: Ambient:

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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 C8000 system manual).

BUS-EN = **OFF** will disable the bus driver circuits on power up

SW-1B = ON enables the CAN "+16" address schema 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 disturbing other channels of the frame.

Pressing the **INIT** button during power up will initialize the module parameters to factory default values.

status LEDs

STATUS	green = red = flashing	=	OK bad
	green	=	under GUI control
VIDEO-REF	green : Off :	=	frame rate matches the one selected for Dolby E encoding no Frame Reference available or frame rate of the reference does not match the one selected for Dolby E encoding
DOLBY E	blue Off	=	the encoder delivers a proper Dolby E signal Dolby E encoding error (see VIDEO-REF)

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web browser based configuration

Set up of all configurations, parameters and functions via a web browser. See also C8702 Frame Controller manual.

OVERVIEW



The above example shows a **C8611** (Name: "DOLBY E ENCODER") in a typical processing chain. Clicking on the **spanner tool** within the module graphics of the **C8611** will open the pages of that module.

If you click on the **switch tool** you will get the page for changing Presets only.

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PRESETS

🕹 Jünger Web Configurator - Moz	illa Firefox					
Datei Bearbeiten Ansicht Chronik	Lesezeichen Extras Hilfe					
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🕽 SeverRoom 🔅 Jünger Audio - Trac] tescheburaschka 🛕 meiner 🗋 T*AP 📄 temp					
👃 Jünger Web Configurator	😰 🛛 🚸 #1917 (8611 Status LED flackert rot) 🔯 🛛 🐣					
jünger	OVERVIEW CONTROLLER C2002 C8082 C8082 C8082 C8082 <thc8082< th=""> <thc8082< th=""> C8082</thc8082<></thc8082<>	DEVICE 01 MODERN SDI C8405 C8189 DEVICE 09 C819 DEVICE 01 C8511 DEVICE 9 C8817 DEVICE 10 C8011 C8817 C8817				
	PRESETS DEVICE SETUP / ROUTING DOLBY E PRO	G. METADATA GPI/O	×			
C8611 DEVICE 9 C8611 Dolby E Encoder	Metadata Load 1: PRESET 01 V LOA Save as # 1 V Name PRESET 01 SAV	D NOW				
Metadata Preset Input Bus Routing Preset Prg Config 5.1 Metadata Source C8000 Metadata Encoder Status Video Reference	Load 17: PRESET 01 Save as # 17 Name PRESET 01 Preset Clipboard COPY TO CLIPBOARD [empty] Backup Presets to File BACKUP	OAD NOW				
nput Bus Status 2h 1/2 2h 3/4 2h 5/6 5 7/8 2h 9/10	Restore Presets from File RESTORE	Durchsuchen				
ertig			۴.,			

Metadata	the module provides 16 Metadata presets which may be used when the Metadata source is set to Preset. The settings found on the DOLBY E and PROG. METADATA pages are stored in Presets. If the Metadata Source is set to "Bus". Each parameter may be overwritten independently on the respective pages. In this case the preset will keep these values.
Input Bus Routing	the modules provides 8 preset which may be used to set up the routing of the input busses (e.g. to select different audio inputs from the system.
Load Preset	will load one of the 8 available Presets from the modules NV memory.
Save as Preset	here you can select a Preset Number (memory location) and assign that preset a 16 character name.

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Preset Clipboard	you can copy the data of the active parameters of the two sets of Presets to a clip board and paste such data into the Preset memory of another module within one frame.
Backup Presets	store all presets of one C8611 into a file.
Restore Presets	restore all presets of a C8611 from a file.

DEVICE

🕲 Jünger Web Configurator - Mozi	lla Firefox						
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 	http://10.110.51.17	1/control.xml			*	G - Google	Q.]
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🛕 Jünger Web Configurator	🔯 🛕 Jünger	Web Configurator	(B)				•
	OVERVIEW	CONTROLLER C8702	HD SDI I-O C8404	8CH LM-SURROUND C8088	51 FAIL OVER C8082	DOLBY-E ENCODER 08811	GPI-O CLUSTER 3 C8817
Jünger		Surce Setup (po			000		
	PRESETS	EVICE SETUP/RU	UTING DULBYE	PROG. METADATA	GPIO		
	DEVICE						
DOLBY-E ENCODER							
	Device Name		DOLBA-F EN	CODER CHAN	GENAME		
C8611							
Dolby E Encoder	Postart Modul	0	RESTART				
	Nestan mouth	P					
	Initialize and R	lestore Factory Defa	aults INITIALIZE]			
Preset modified: PRE1	Controller Vers	sion	01				
Prg Config 5.1 + 2							
Metadata Source Preser	Dolby Firmwar	e Version	1.1.1.6.				
Video Reference							
Input Bus Status							
Ch 1/2							
Ch 5/6	Backup Settin	gs and Presets to F	ile BACKUP				
Ch 9/10	Restore Settin	igs and Presets fron	File RESTORE		Durchsu	chen	
Applet detectJava started							

Device Name	You can assign a 16 digit name to the module.
Restart Module	Pressing <restart> will warm start the module.</restart>
Initialize	Pressing <initialize></initialize> will initialize the module to factory default.
Controller Version	Display of the firmware version of the module controller.
Dolby Firmware Version	Version of the Dolby piggyback module.

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BACKUP	Pressing <backup></backup> will move all settings including the Presets to the PC, so you can store the backup data to a file.
RESTORE	Pressing <restore></restore> after loading a backup file will move all settings including the Presets back to the module.

SETUP / ROUTING :

setup of the module and the Bus routing

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🛕 Jünger Web Configurator	🛛 🙀 #1917 (8611 Status	LED flackert rot) 🔯 🛛 🕂				14
	OVERVIEW CONTROLL	ER C8086 DEVICE 13	C8082 DEVICE 01	MODERN SDI	C8189 DEVICE 09	
	C8601 DEV	1CE 01 8086 OLD	C8486 DEVICE 01	C8611 DEVICE 9	C8817 DEVICE 10	
Junger	C8601	C8086	C8486	C8611	C8817	
						1 march
	PRESETS DEVICE SI	TUP / ROUTING DOLBY E	PROG. METADATA	GPI/O		×
				_		
COBIT DEVICE 9	from C8000 Bus	_	Dolby E Encoder		external Output	
C8611	S13 🔻 8ch Mux		100000		BNC	
		Ch 1/2 1L/1R				
Dolby E Encoder			-	Dolby E		
	S14 D 1C/1LFE		E		to C8000 Bus	
	S15 1Ls/1Rs	Ch 5/6 1Ls/1F	ts 1 program 5.1			
Metadata Preset modified		Ch 7/8 n/a	2.4.4			
Input Bus Routing Preset	S3 L 2U2R				Enable Bus Driver	
Prg Config 5.1					Das Direct	ŕ
Metadata Source C8000	Metadata 1 prog	dram			DE S6	
Encoder Status			Delay			
Video Reference	S16 PCM		0 frames	s	PCM S5	
Input Bus Status			-	-		-
Ch 3/4	Error Detection	Metadata Source	Metad	ata Reversion Mo	de	
Ch 5/6		Preset Bug	⊙ Las	st used un encoding		
Ch 9/10 🔍	Ch 3/4	O External (RS48	5)	ip encouning		
	🗹 Ch 5/6	,	·			
	🗆 Ch 7/8					
	🗆 Ch 9/10					
Fertig						¥.,

From C8000 Bus
 The audio busses from the C8k frame must be assigned to the encoder for the respective signals. The labels at the encoder input show which signals the encoder expects due to its configuration determined by Program Config (see DOLBY E page). If some of the 8 input signals are multiplexed in 8ch mode, you must check the respective channel check boxes (see example above). This is the so called MixMux mode where the module may be fed from a combination of 2Ch and 8Ch signals.
 8ch Mux

here one must select the bus that is fed in 8 channel Mux mode from an upstream module. The check boxes below determine which channel pair will be taken from the 8 channel Mux.

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Metadata	The Metadata maybe inserted in the USER bits of the PCM signal(s) on the C8k audio busses. Here you can select from which bus it should be read.
PCM	An independent digital stereo (or 2Ch) audio signal (PCM or encoded) may be taken from the c8k bus to compensate for the Dolby E encoding delay.
Delay	The module provides a 2ch delay (up to 4 frames) to compensate for the Dolby E encoding delay.
To C8000 System Bus	The encoder output may be assigned to the C8k busses. It is fed to the external BNC output as well.
Enable Bus Driver	You may turn off (tri state mode) all bus drivers for installation to prevent conflicts with modules already in service.
External Output BNC	The Dolby E encoded bit stream is sent out via an unbalanced AES3 output in parallel to the C8k audio bus
Metadata Source	 Preset : The parameters to setup the Dolby E encoder and the program Metadata are defined manually. You may also load a Preset edit these parameters and store them as a Preset again. Bus : The Metadata for the Dolby E encoder are extracted from the USER bits in Metadata Subset format of one of the incoming PCM signals external (RS485) : The Metadata for the Dolby E encoder are received by the 9-pin Sub D connector at the front side of the module in Dolby E format.
Error Detection	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, DSP 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 Bus Status". A grey "LED" shows that the detection is disabled. While green is OK, red indicates an error condition. The bus 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 GPI/O module(s) are installed). The SNMP manager may afterwards poll the "modulesStatus" for more detailed status information per input (see SNMP documentation for details).
Metadata Reversion Mode	Last used : If a Metadata error is detected from the source, the encoding process will continue with "last used" parameters Stop encoding : The encoder will stop encoding in case of a Metadata error from the input

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Dolby[®] Metadata

The Dolby[®] Laboratories, Inc. have introduced the "data about the audio data", the Dolby[®] Metadata which travel along with the multi channel bit stream from acquisition (point of audio recording) to delivery (Dolby Digital decoder at home either as part of the TV Set Top Box or the home theater system). Dolby[®] Metadata in the end of the day may control the home equipment in a way that the sound impression is as close as possible to what the producers intention was when mixing a movie sound track.

There is not enough room for explanation of the Dolby Metadata system in a product manual like this. We recommend to those who are not familiar with this quite complex matter, to study the many publications from Dolby Inc. probably found here:

http://www.dolby.com/technicallibrary.aspx?id=306

You can browse the Technical Library and **<Search>** for **"Dolby E"**. Here you will find the **"Dolby**[®] **Metadata Guide".**

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DOLBY E :

setup of the Dolby E related Metadata

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	OVERVIEW C	ONTROLLER 8702	8CH MIX MATRIX C8088	DRS2 UKW PD 1 C8007	HD SDI I-O C8404	C841X DEVICE 1C C8413	
	C	8601 DEVICE 08 8601	C8082 DEVICE 05 C8082	C8189 DEVICE 00 C8189	C8611 DEVICE 7 C8611	C9817 DEVICE 00 C8817	
Junger	PRESETS DEVI	CE SETUP / RO	DUTING DOLBY E	PROG. METADATA	GP1/0		
C8611 DEVICE 7	Program Confi	j 5.1	+2				
C8611	Bitstream Form	at	O 16 Bit Dolby E	1			
Dolby E Encoder	Frame Rate	25 Hz (P	AL)				
Preset	Latency Reduc	tion 32 S	Samples				
Prg Config 5.1 + 2 Metodete Course Direct	Program Descri	ption Text					
Metadata Solice Freset	Prog 1	German English Co	Original ommentry	APPLY			
Input Bus Status Ch 1/2							
Ch 3/4							
Ch 7/8							
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The **Dolby E** parameters contain the information of the **Dolby E stream**. The table below shows the parameters and their possible values :

Parameter	Range
Program Configuration	5.1+2, 5.1 +2x1, 4+4, 4+2x2, 4+2+2x1, 4+4x1 4x2, 3x2+2x1, 2x2+4x1, 2+6x1, 8x1 5.1, 4+2, 4+2x1, 3x2, 2x2+2x1, 2+4x1, 6x1 4, 2+2, 2+2x1, 4x1 7.1, 7.1SCRN
Bitstream Format	Dolby E 16Bit, Dolby E 20Bit
Frame Rate	None, 23,98Hz, 24Hz, 25Hz (PAL) 29,97Hz (NTSC), 30Hz, 50Hz, 59,94Hz, 60Hz
Latency Reduction (Dolby E alignment)	0 32 Samples (moves the beginning of the Dolby E frame towards the start of the video frame
Program Description Text	32-character text coded program

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PROG. METADATA :

Setup of **Dolby Digital** Metadata example below shows **2 programs** (5.1 & stereo) :

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	OVERVIEW CONTROLLER	DOLBY-E DECODER	DOWNMIX LEVELER	SDI I-0 GPI-0 08404 08817	1
	SYNC MASTER	DUCKER C8082	DOLBY E ENCODER	4X MIC PREAMP	
Junger			(assess		
	PRESETS DEVICE SETUP	ROUTING DOLBY F	PROG. METADATA	GPU0	
	Theorem Dense Geron	Noorino Docore	THOUTHETHE	site	
		1L,R,C,LFE,Ls,Rs		2L,2R	
Dolby E Encoder	General	progr		prog 2	
	Data Rate	448 kbps	-	unspec. kbps	
C8611	Channel Mode	3/2	LFE 🗹	2/0	
and the second	Bitstream Mode	C. Main		C. Main	
Dolby E Encoder	Convright				
	Dymamia Dange Central				
	Dialnorm	-31 dBFS		-31 dBFS	
Preset modified: PRESET 1	Profile Line Mode	None		None	
Prg Config 5.1 + 2	Profile RF Mode	None		None	
Metadata Source Preset	Filter				
Encoder Status	DC-High Pass				
Video Reference	Low Pass		LFE Low Pass		
Input Bus Status	RF Overmod Protect				
Ch 1/2	Surround 3 dB Attenuation				
Ch 5/6	Surround Phase Shift				
Ch 7/8	Downmix Nominal Contor Mix Loval	AB			
010/10	Nominal Surround Mix Level	dB			
	Preferred Downmix Mode	Lo/Bo			
	Lo/Ro Center Mix Level	-3.0 dB	(Downmix to Stereo)		
	Lo/Ro Surround Mix Level	off dB			
	Lt/Rt Center Mix Level	-3.0 dB	(Downmix to Dolby ProLo	ogic)	
	Lt/Rt Surround Mix Level	off dB			
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The **PROG.METADATA** are used to set up the **Dolby D encoder** and control the **Dolby D decoder** at home.

A lot of these Metadata are applicable only for surround programs.

The table on the next page is an example for 2 programs. The possible Data Rate depends on the Channel Mode (some channel modes require a minimum Data Rate).

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Parameter	Range - Program 1	Range - Program 2	
General			
Data Rate (kbps)	32, 40, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 576, 640, unspecified.	32, 40, 48, 56, 64, 80, 96, 112, 128, 160, 192, 224, 256, 320, 384, 448, 512, 576, 640, unspecified.	
Channel Mode	1+1, 1/0, 2/0, 3/0, 2/1, 3/1, 2/2, 3/2	1+1, 1/0, 2/0	
LFE	On, Off	N.A.	
Bit Stream Mode	C. Main, Mus Eff Vis. Imp, H. Imp Dialogue, Comment Emerg, Karaoke	C. Main, Mus Eff Vis. Imp, H. Imp Dialogue, Comment Emerg, Karaoke	
Original Bit Stream	On. Off	On. Off	
Copyright	On, Off	On, Off	
Dynamic Range Control			
Dialog Normalization	-1dBFS31dBFS	-1dBFS31dBFS	
Profile Line Mode	None, Film St Film Lt, Mus St Mus Lt, Speech	None, Film St Film Lt, Mus St Mus Lt, Speech	
Profile RF Mode	None, Film St Film Lt, Mus St Mus Lt, Speech	None, Film St Film Lt, Mus St Mus Lt, Speech	
Filter			
DC-Highpass	On, Off	On, Off	
Low Pass	On, Off	On, Off	
LFE Low Pass	On, Off	N.A.	
RF Overmod. Protection	On, Off	On, Off	
Surround 3dB Attenuation	On, Off	N.A.	
Surround Phase Shift	On, Off	N.A	
Downmix			
Nominal Center Mix Level	-3dB, -4,5dB, -6dB	N.A	
Nominal Surround Mix Level	-3dB, -6dB, OFF	N.A	
Preferred Downmix Mode	Not indicated Lt/Rt, Lo/Ro	N.A	
Lo/Ro Center Mix Level	OFF, -6dB, -4,5dB -3dB, -1,5dB, 0dB 1,5dB, 3dB	N.A	
Lo/Ro Surround Mix Level	OFF, -6dB, -4,5dB -3dB, -1,5dB, 0dB 1,5dB, 3dB	N.A	
Lt/Rt Center Mix Level	OFF, -6dB, -4,5dB -3dB, -1,5dB, 0dB 1,5dB, 3dB	N.A	
Lt/Rt Surround Mix Level	OFF, -6dB, -4,5dB -3dB, -1,5dB, 0dB 1,5dB, 3dB	N.A	

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	S	etup of th	ne GPI/Os				
er Web Configurator - Mozi	illa Firefox						
earbeiten <u>A</u> nsicht <u>C</u> hronik	Lesezeichen E <u>x</u> tr	as <u>H</u> ilfe					
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ger Web Configurator	-	' (8611 Status LED fl	ackert rot)				4
	-	CONTROLLER	C8086 DEVICE 13	C8082 DEVICE 01	MODERN SDI	C8189 DEVICE 09	
	UVERVIEW	C8702	C8096	C8082	C8405	C8189	
ünger		C8601	C8086	C8486	C8611	C8817	
	PRESETS D	EVICE SETUP	ROUTING DOLBY E	PROG. METADATA	GPI/O		×
	CDI						^
Construction of the second second	GFI						
8611 DEVICE 9	Audio	· · · · · · · · · · · · · · · · · · ·			Input Bu	s Routing	
09611	Preset 1	OFF	Preset 11	OFF	Preset 1	OFF	
08611	Preset 2	OFF	Preset 12	OFF	Preset 2	OFF	
Dolby E Encoder	Preset 3	OFF	Preset 13	OFF	Preset 3	OFF	
	Preset 4	OFF	Preset 14	OFF	Preset 4	OFF	
	Preset 5	OFF	Preset 15	OFF	Preset 5	OFF	
ta Preset	Preset 6	OFF	Preset 16	OFF	Preset 6	OFF	
modified	Preset 7	OFF	Metadata Preset	OFF	Preset 7	OFF	
	Preset 8	OFF	Metadata Bus	OFF	Preset 8	OFF	
nfig 5.1	Preset 9	OFF	Metadata External	OFF			
ta Coulde Could	Preset 10	OFF					
er Status 📃 🖉	GPO						=
ue Statue	Audio				Innut Bu	s Routing	
•	Preset 1	OFF	Preset 11	OFF	Preset 1	OFF	
	Preset 2	OFF	Preset 12	OFF	Preset 2	OFF	
	Preset 3	OFF	Preset 13	OFF	Preset 3	OFF	
	Preset 4	OFF	Preset 14	OFF	Preset 4	OFF	
	Preset 5	OFF	Preset 15	OFF	Preset 5	OFF	
	Preset 6	OFF	Preset 16	OFF	Preset 6	OFF	
	Preset 7	OFF	Metadata Preset	OFF	Preset 7	OFF	
	Preset 8	OFF	Metadata Bus	OFF	Preset 8	OFF	
	Preset 9	OFF	Metadata External	OFF			
	Preset 10	OFF					
			Metadata Error	OFF			
			Encoding Error	OFF			
			Videorof Error	OFE			

GPI/O

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Metad

Input B Ch 1/2 Ch 3/4 Ch 5/6 Ch 7/8 Ch 9/1

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You can assign GPI numbers to activate one of the various Presets.

If a **GPI** is detected by a **GPI/O** module of the C8k system, it puts an associated number on the **CAN** bus. Each module in a frame permanently listens for such numbers and will perform the pre-programmed action if it reads that number.

You can assign GPO numbers which will indicate the respective action.

E.g. if an Encoding Error occurs the C8611 puts the associated **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 **GPO** (see C8817 manual for details).

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