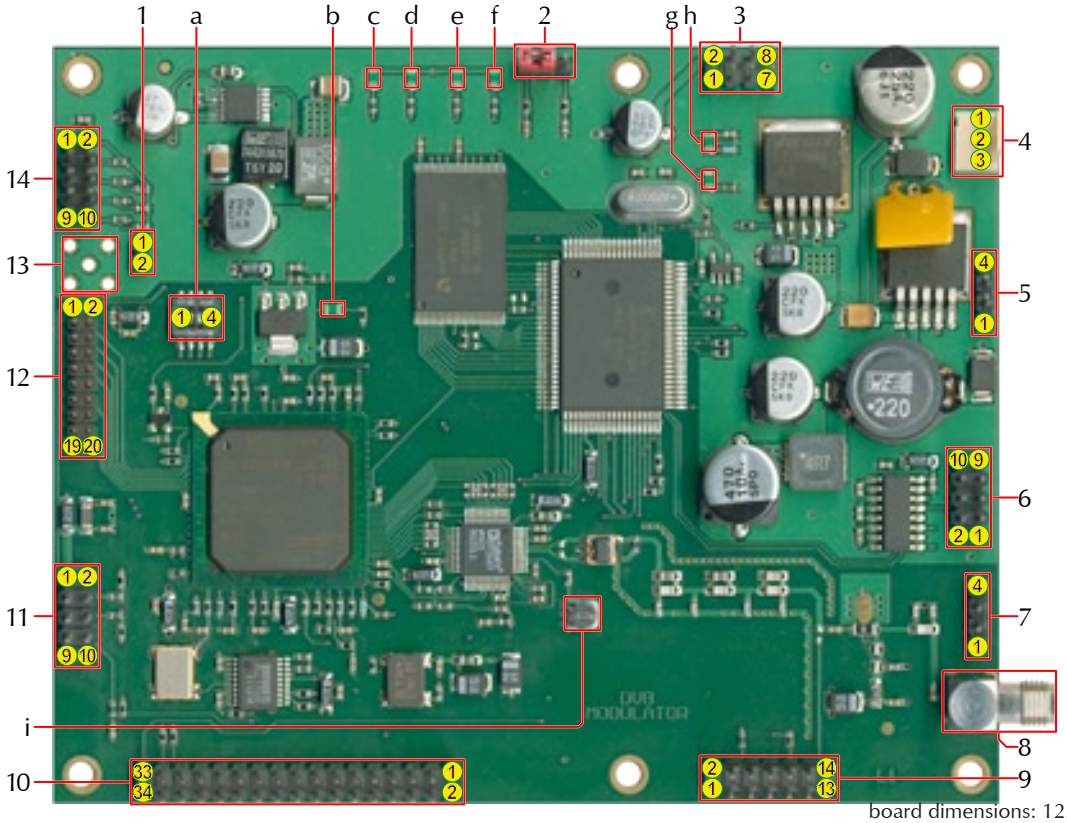
1 Connector description



Connectors	1	2pin Header	Optional battery 3.6 V
	2	3pin Jumper	MCU Prog. Jumper
	3	8pin Header	Power supply for Upconverter
	4	Power Input	7 V–24 V=
	5	4pin Header	Optional
	6	10pin Header	RS232
	7	4pin Header	Optional serial connector
	8	SMA	RF out 3.5–70 MHz, 75-90 dBµV
	9	14pin Header	Control for Upconverter
	10	34pin Header	TS input
	11	10pin Header	I²C-Bus connector for display and key unit
	12	20pin Header	Optional FPGA-Bus
	13	SMB	Optional 10 MHz reference from GPS (not mounted in picture above)
	14	10pin Header	JTAG connector

LEDs and controls	a	4pin DIP switch	mode switch, see pin description part for details	
	b	LED green	Power ok (2,5 V)	
	c	LED green	on	
	d	LED green	on	DVB-T-Firmware ok
	e	LED green	***off***:Encoder, ***on***:Ext.Mux+int.TS-Clk., ***blink***:Ext.Mux+ext.TS-Clk.	e+f blinking: NIM detected on TS
	f	LED green	Loading Firmware (flashes while loading, off after loading => ok)	
	g	LED green	Power ok (3,3 V)	
	h	LED green	Power ok (5,0 V)	
	i	Potentiometer	IF output level	

2 Pin description

1 – Optional battery

1	GND
2	+3.6 V=

2 – Mode jumper

Picture shows **run**-mode, other position is **program**-mode

3 – Upconverter power supply

1	GND	2	Vin
3	GND	4	Vin
5	GND	6	+5,0 V
7	GND	8	+5,0 V

4 – Power input

1	Vin 7–24 V
2	GND
3	GND

5 – Optional

1	Port PA0 from MCU
2	Port PA1 from MCU
3	Port AN0 from MCU
4	GND

6 – RS232

1	con. with 4+6	2	TxD
3	RxD	4	con with 1+6
5	GND	6	con with 1+4
7	RTS	8	CTS
9	not connected	10	GND

7 – Optional serical con.

1	+3.3 V
2	GND
3	RxD FPGA
4	TxD FPGA

9 – Upconverter control

1	PLL Clk	2	PLL Data
3	PLL En2	4	PLL En1
5	PLL Lock	6	GND
7	Standby	8	GND
9	PTT	10	10 MHz Ref.
11	GND	12	GND
13	IFout	14	GND

10 – TS for Encoder/Mux

1	+5,0 V	2	+5,0 V
3	+5,0 V	4	+5,0 V
5	SDA	6	not connected
7	SCL	8	xReset
9	GND	10	GND
11	TSCLK B	12	PSYM B
13	not connected	14	DVAL B
15	TS B6	16	TS B7
17	TS B4	18	TS B5
19	TS B2	20	TS B3
21	TS B0	22	TS B1
23	GND	24	GND
25	SD Out (f. E.*)	26	PLL THR (f. E.*)
27	SDCLK (f. E.*)	28	SD In (f. E.*)
29	GND	30	GND
31	MCLK 27 MHz	32	ASCLK (f. E.*)
33	RST Vid. Codec	34	not connected

*f. E. = for Encoders

11 – I²C for controlpanel

1	+5,0 V	2	+5,0 V
3	SDA	4	SDA
5	SCL	6	SCL
7	Reset-In	8	IRQ
9	GND	10	GND

12 – optional

1	+3,3 V	2	CLK 0
3	Bit 1	4	Bit 2
5	Bit 3	6	Bit 4
7	Bit 5	8	Bit 6
9	Bit 7	10	Bit 8
11	Bit 9	12	Bit 10
13	Bit 11	14	Bit 12
15	Bit 13	16	Bit 14
17	Bit 15	18	Bit 16
19	CLK 1	20	GND

14 – JTAG connector

1	GND	2	+3,3 V
3	GND	4	TMS
5	GND	6	TCK
7	GND	8	TDO
9	GND	10	TDI
11	GND	12	not connected
13	GND	14	not connected

a – Mode switch

	off	*on*
1	Encoder	Ext. TS Input
2	TS-CLK intern	TS-CLK extern
3	falling clock edge	rising clock edge
4	Normal spectrum	Inverted spectrum

For Tuner on TS (NIM-Support): 1+2 on

3 Specifications

board dimension	125×100 mm
board weight	<50 g
Voltage	7 V–24 V
Power consumption	~5 W
Modulation methods	QPSK, QAM16, QAM64
Modulation Error Rate (MER)	>40 dB
FEC	½, ⅔, ¾, ⅚, ⅞
Guard Interval	¼, ⅛, 1/16, 1/32
IFFT Mode	2k and 8k
Bandwidth	6, 7 and 8 MHz
IF_{out}	80–95 dBµV
IF Frequency	3.5–70 MHz (in steps of 125 kHz)
TS Input	Clock direction and Clock edge switchable
Encoder support and BIZ encryption for encoder stream.	

Corrections:

19.03.2006 *LED c and d:* replaced text from elderly version. *Pinout Header 9*: Text of pins #10 and #14 („10 MHz Ref.“/“GND“) swapped.

26.03.2008 Coloured TS connector