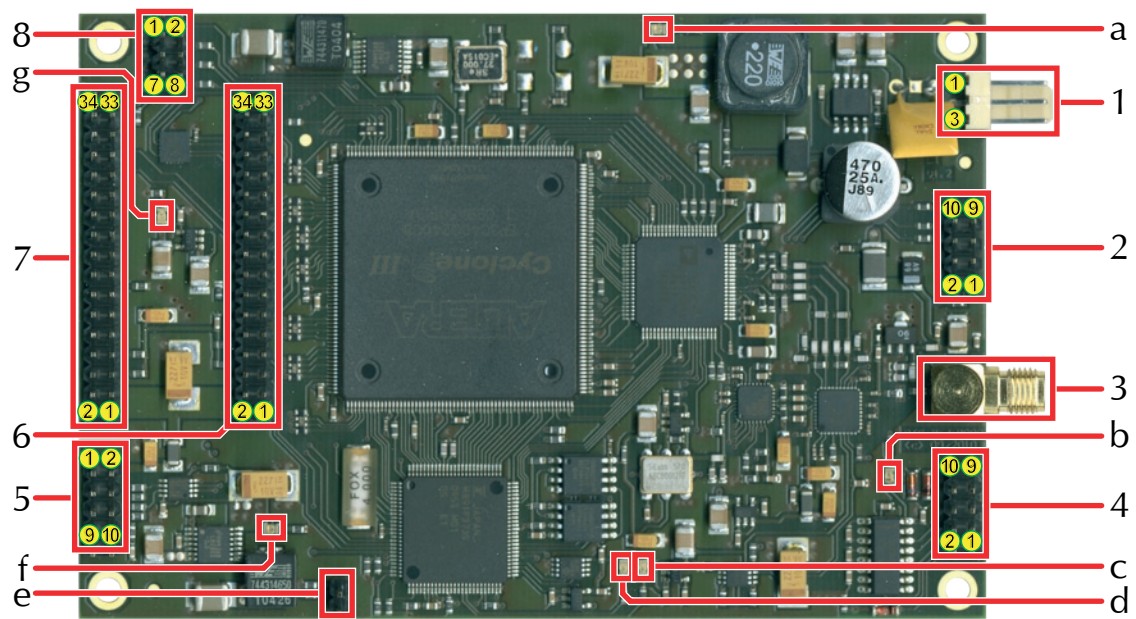


1 Connector description



Board dimensions: 120×80 mm

Connectors	1	Power Input	8–24 V=
	2	10pin Header	Opt. ext. Upconverter control
	3	SMA	RF out 50 Ω  note: RF_{OUT} is not filtered!
	4	10pin Header	RS232 (115k2, 8N1)
	5	10pin Header	I ² C-Bus
	6	34pin Header	TS _{IN 1}
	7	34pin Header	TS _{IN 2}
	8	8pin Header	opt. Ref. Clock in
LEDs and switches	a	LED green	5.0 V ok
	b	LED red	RF Lock (off = locked)
	c	LED green	PLL Lock ok
	d	LED green	Encoder Load ok
	e	2pin Header	MCU Prog if set
	f	LED green	3.3 V ok
	g	LED green	2.5 V ok

2 Pin description

1 – Power supply			
1	V _{IN} 8–24 V=	2, 3	GND

2 – opt. ext. Upconverter control			
1	GND	2	16 MHz Ref.
3	PTT	4	PLL-ENA
5	PLL Lock	6	PLL-CLK
7	+5.0 V	8	PLL-DATA
9	GND	10	Analog _{IN} 0–3.3 V

4 – RS232			
1	ext. mode	2	Control Tx/D
3	Control Rx/D	4	Data Rx
5	GND	6	Data Tx
7	con. with 8	8	con. with 7
9	Reset	10	GND

5 – I²C-Bus			
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

e – Mode jumper	
open	run mode
closed	program mode

8 – opt. Reference Clock in			
1	GND	2	10 MHz ref. in.
3	GND	4	1 pps
5	GND	6	GPS Rx (3.3 V)
7	+5.0 V	8	GPS Tx (3.3 V)

6, 7 – TS_{IN}			
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 in/out	12	PSYM
13	not connected	14	DVAL
15	TS 6	16	TS 7
17	TS 4	18	TS 5
19	TS 2	20	TS 3
21	TS 0	22	TS 1
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			

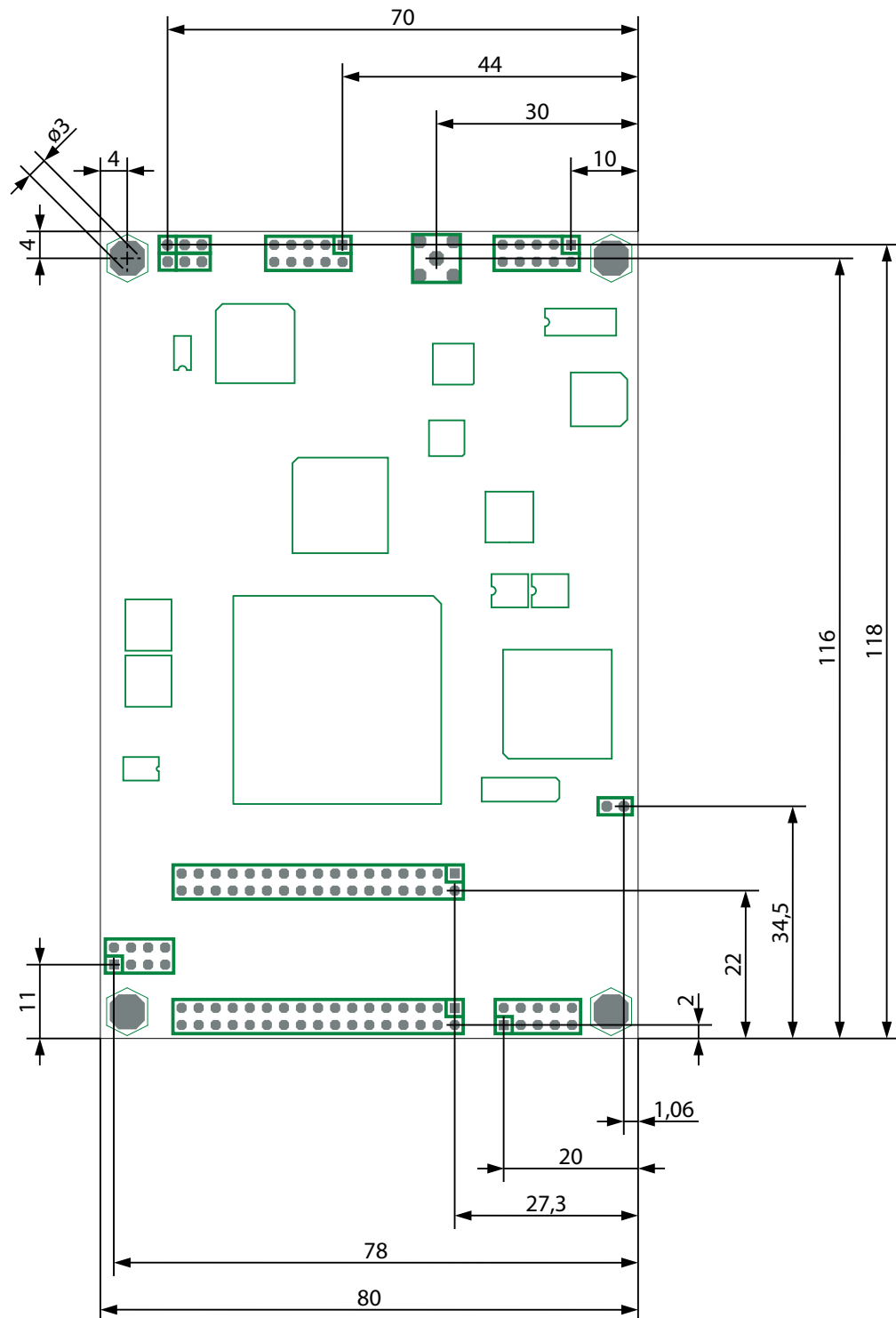
3 Specifications

	Board dimensions	120×80 mm
	Board weight	<100 g
	Voltage	8–24 V=
	Power consumption	~6 W
	TS Input	Raw TS input: Clock direction switchable Tuner TS input: DVB-S/-S2/-C/-T single/-T diversity/Dibcom7000/ATSC NIM Encoder input ASI input
	RF Frequency range	70 MHz – 2200 MHz in 1 kHz-steps
DVB-S	Constellation	QPSK
	Modulation Error Rate (MER)	>27 dB
	FEC	$\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{5}{6}$, $\frac{7}{8}$
	Symbolrate	1–45 MSymbol/s in 1 kSymbol-steps
	RF_{out}	80–107 dBμV@50 Ω
DVB-S2	Constellation	QPSK, 8PSK, 16APSK, 32APSK
	Modulation Error Rate (MER)	>27 dB
	FEC (LDPC)	$\frac{1}{4}$, $\frac{1}{3}$, $\frac{2}{5}$, $\frac{1}{2}$, $\frac{3}{5}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{4}{5}$, $\frac{5}{6}$, $\frac{8}{9}$, $\frac{9}{10}$ Note: not every FEC is supported in each constellation!
	Symbolrate	1–32 MSymbol/s in 1 kSymbol-steps
	Roll-Off-Factor	0.2, 0.25, 0.35
	Pilots	on/off
	RF_{out}	80–107 dBμV@50 Ω
DVB-C	Constellation	QAM16, QAM32, QAM64, QAM128, QAM256
	Modulation Error Rate (MER)	>45 dB
	Symbolrate	1000–7000 kSymbol/s in 1 kSymbol-steps
	RF_{out}	80–107 dBμV@50 Ω
DVB-T	Constellation	QPSK, QAM16, QAM64
	Modulation Error Rate (MER)	>40 dB
	FEC	$\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, $\frac{5}{6}$, $\frac{7}{8}$
	Guard Interval	$\frac{1}{4}$, $\frac{1}{8}$, $\frac{1}{16}$, $\frac{1}{32}$
	IFFT Mode	2k, 4k, 8k
	Bandwidth	5, 6, 7 and 8 MHz
	RF_{out}	80–100 dBμV@50 Ω
ATSC	Constellation	8VSB
	Modulation Error Rate (MER)	>38 dB
	Bandwidth	6 MHz
	RF_{out}	80–107 dBμV@50 Ω



note: RF_{OUT} is **not** filtered!

4 Dimensional drawing



note: all dimensions are given in mm (1 inch=25.4 mm)!

The board itself is 2.0 mm thick, the maximal component height is 14.0 mm from the top of the board. The safety clearance for component pins should be 2.0 mm from the bottom of the board.

Errata/corrections:

07.10.2010 Release v1.0

The information in this manual was compiled with high care and to our best knowledge; nevertheless there might be some errors left in this document. We do not take legal or any other responsibility for the correctness of any information.

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We are happy to receive your comments and questions:

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