

NetDCU10

Hardware

Version 1.00 Date 07.11.2007

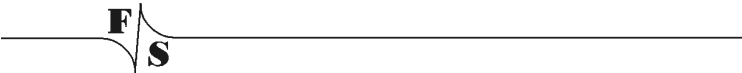
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6 Technical Data NetDCU1045



1 Arrangement of Connectors

Figure 1.1: Top View

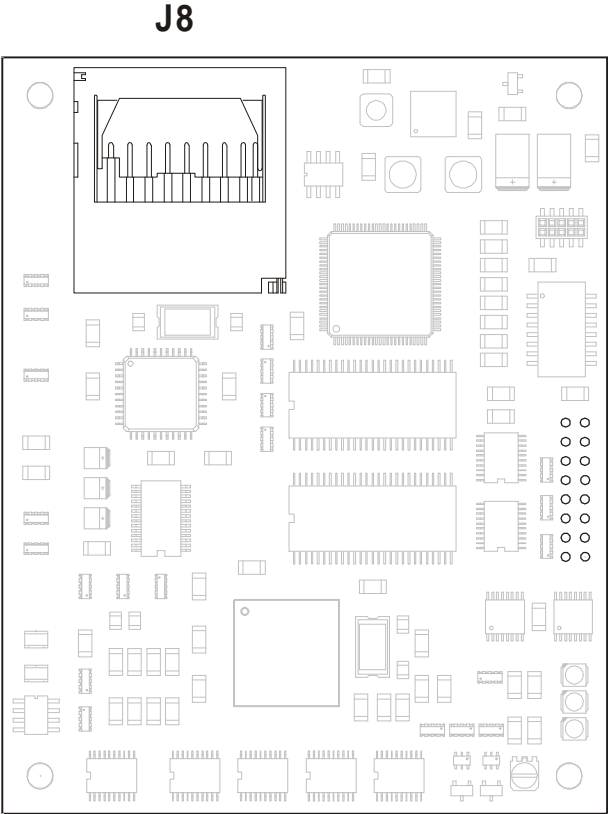
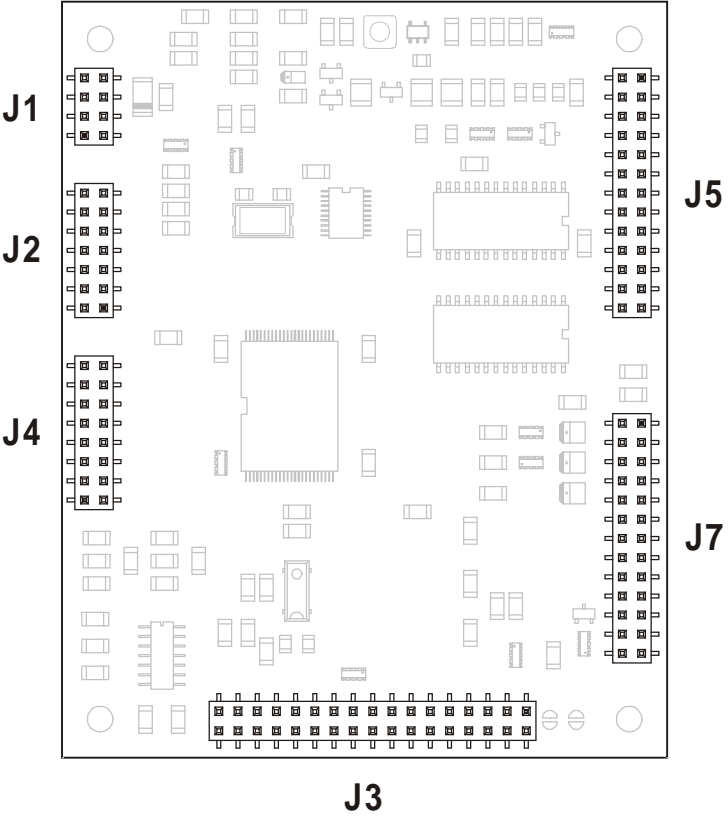


Figure 1.2: Back View



2 Connectors

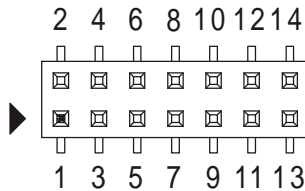
2.1 Counting of the connector pins

All connections prepared for two-row connectors on the Net-DCU10 are treated as follows.

Pin 1 is marked by a square pad. The row with pin 1 contains all odd-numbered pins (1, 3, 5, 7, etc.), and, corresponding to this, the row without pin 1 contains all even-numbered pins (2, 4, 6, 8, etc.).

Figure 2.1 shows the counting of connector J2 of the Net-DCU10.

Figure 2.1: Counting on connector J2



2.2 J1 Power Supply

J1 Power Supply	
Pin	Function
1	+3V ... +15V / max. 2A DC (CFL converter)
2	- - -
3	+5V \pm 5% DC at max. 0,4A (*)
4	+5V \pm 5% DC at max. 0,4A (*)
5	+3V...+3,6V DC (Battery buffering RTC) (**)
6	- - -
7	GND (Ground Power Supply)
8	GND (Ground Power Supply)

(*) \Rightarrow No Display connected.

(**) \Rightarrow Can be left out depending on application.

(- - -) \Rightarrow Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

2.3 J1 Serial RS485 Port

J1 Serial RS485 Port	
Pin	Function
1	---
2	RS485+
3	---
4	---
5	---
6	RS485-
7	GND (Ground Power Supply)
8	GND (Ground Power Supply)

(---) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

2.4 J2 Ethernet-Interface

J2 Ethernet-Interface		
Pin	Signal	Function
1	RxD	Pin 3 of RJ45 connector
2	RxD	Pin 6 of RJ45 connector
3	---	
4	---	
5	---	
6	---	
7	TxD	Pin 1 of RJ45 connector
8	TxD	Pin 2 of RJ45 connector
9	GND	Signal Ground
10	V _{CC}	+5V DC
11	---	
12	---	
13	---	
14	---	

(- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

2.5 J2 Serial RS232 Port A

J2 Serial RS232 Port A			
Pin	Signal	Function	I/O
1	---		
2	---		
3	RxD1	Received Data	I
4	RTS1	Request To Send	O
5	TxD1	Transmitted Data	O
6	CTS1	Clear To Send	I
7	---		
8	---		
9	GND	Signal Ground	Power
10	V _{CC}	+5V DC	Power
11	---		
12	---		
13	---		
14	---		

(- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

2.6 J2 CAN-Interface

J2 CAN Interface			
Pin	Signal	Function	I/O
1	---		
2	---		
3	---		
4	---		
5	---		
6	---		
7	---		
8	---		
9	GND	Signal Ground	Power
10	V _{CC}	+5V DC	Power
11	CAN1-RxD	Receive signal	I
12	CAN1-TxD	Transmit signal	O
13	CAN2-RxD	Receive signal	I
14	CAN2-TxD	Transmit signal	O

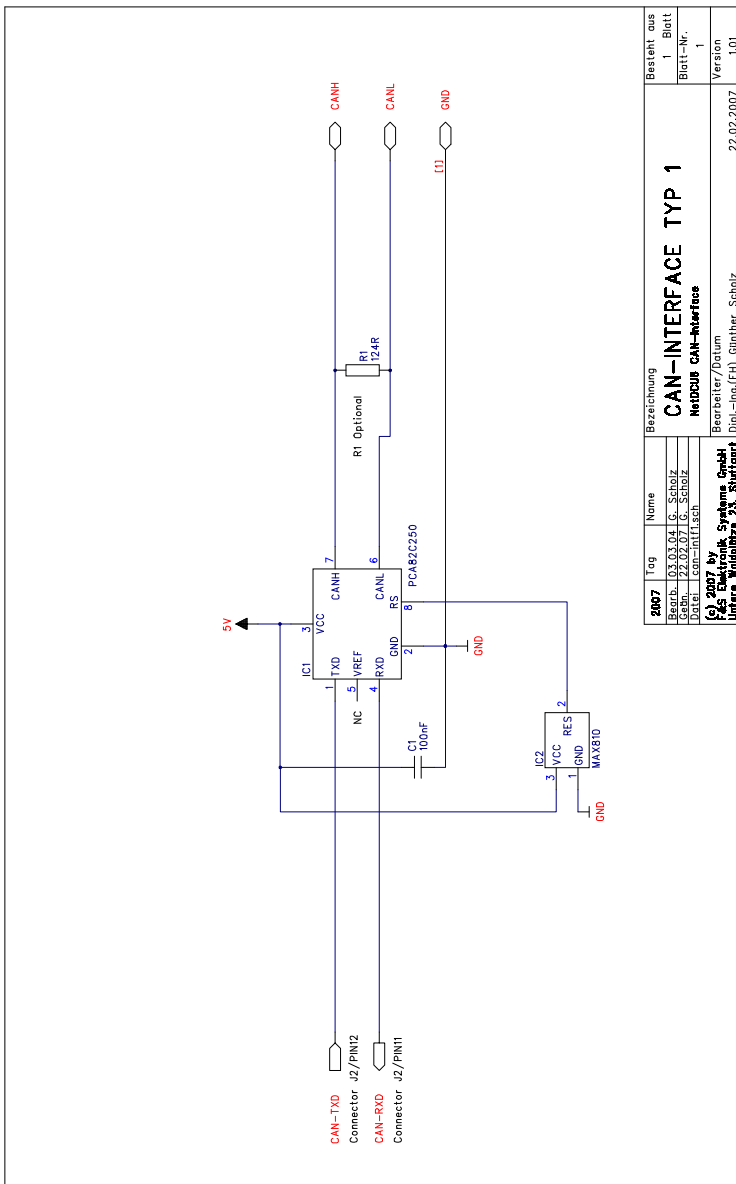
(- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

Note:

The two CAN signals can NOT be connected to the CAN bus directly. You need a specific interface logic. (See following examples CAN-Interface type1/2).

2.6.1 Example CAN-Interface type 1

The following schematic (next page) shows an interface between NetDCU10 and CAN bus. It has no galvanic isolation.

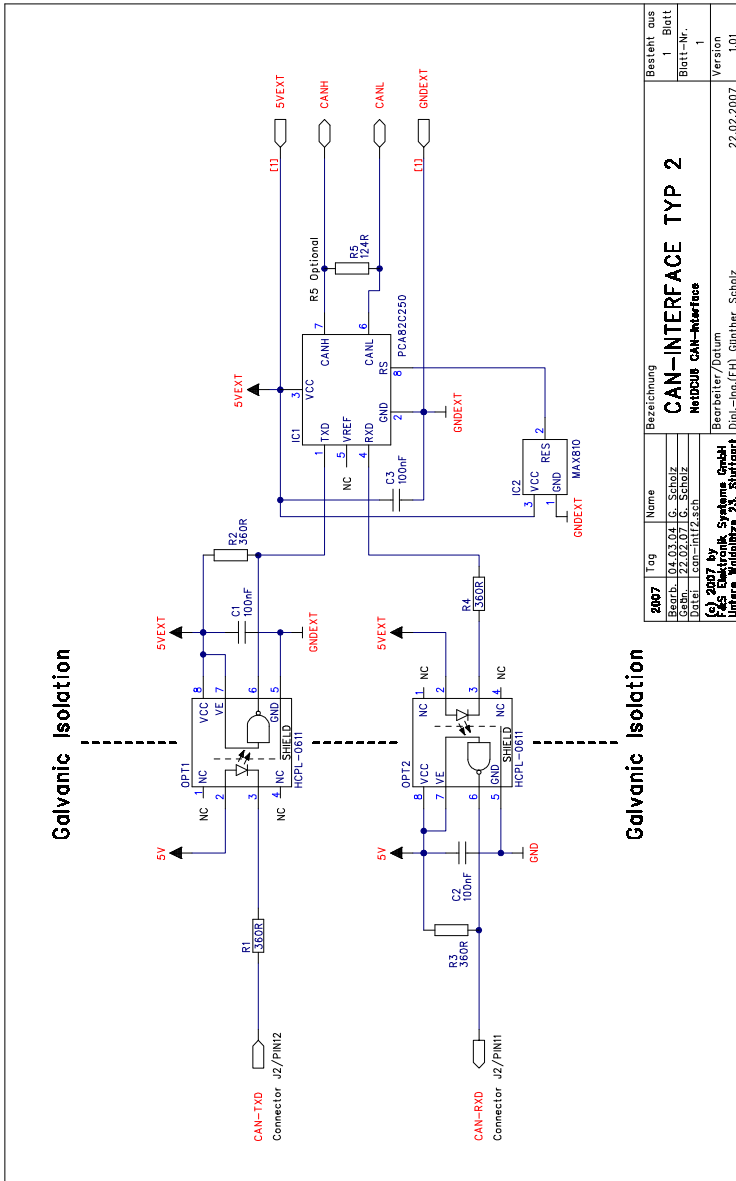


Tag		Name		Bezeichnung		Besteht aus	
2007	03.03.04	G. Scholz		CAN-INTERFACE TYP 1		1 Blatt	
	22.02.07	G. Scholz		HEIDOLM CAN-Interface		Blatt-Nr.	
		HTL/LSH				1	
© 2007 by F&S Elektronik Systeme GmbH Untere Waldpitze 23, Stuttgart				Bearbeiter/Datum Dipl.-Ing.(FH) Günther Scholz		Version 22.02.2007	

2.6.2 Example CAN-Interface type 2

The following schematic (next page) shows an interface between NetDCU10 and CAN bus *with* galvanic isolation.





2007		Name		Bezeichnung		Besteht aus	
Gez.	04.03.04	G. Scholz	CAN-INTERFACE TYP 2			1 Blatt	
Gez.	22.07.07	G. Scholz	HELDIOU CAN-Interface			Blatt-Nr.	
Gez.	08.07.2007	G. Scholz	Hersteller/Dateum			Version	
Gez. 2007 by			F&E Elektronik Systeme GmbH			22.02.2007	
Gez. 2007 by			Untere Waldpflanz 23, Stuttgart			Dipl.-Ing.(FH) Günther Scholz	



2.7 J3 Display Interface

J3 Display Interface		
Pin	Signal	Function
1	GND	Signal Ground
2	R1	Red Bit 1
3	R0	Red Bit 0 (LSB)
4	G5	Green Bit 5 (MSB)
5	G4	Green Bit 4
6	G3	Green Bit 3
7	G2	Green Bit 2
8	GND	Signal Ground
9	B3	Blue Bit 3
10	B2	Blue Bit 2
11	B1	Blue Bit 1
12	B0	Blue Bit 0 (LSB)
13	G1	Green Bit 1
14	G0	Green Bit 0 (LSB)
15	B5	Blue Bit 5 (MSB)
16	B4	Blue Bit 4
17	GND	Signal Ground
18	V _{EEK}	(*)
19	CLP	Data clock pulse
20	FRP	Frame Impulse
21	M	Display data valid signal
22	LIP	Line Impulse
23	DEN	Display ON
24	GND	Signal Ground
25	V _{LCD}	Power Supply LCD +3,3V (+5V)
26	-V _{EE}	Negative LCD Voltage
27	V _{ADJ}	Contrast Adjustment
28	GND	Signal Ground
29	+V _{EE}	Positive LCD Voltage
30	V _{CFL}	Max. +15V für CFL converter
31	R2	Red Bit 2

J3 Display Interface		
Pin	Signal	Function
32	R3	Red Bit 3
33	R4	Red Bit 4
34	R5	Red Bit 5 (MSB)

(*) ⇒ Output voltage that can be adjusted by software
0V ... +3,3V.

2.8 J3 LCD Connection

J3	Mono STN		Color STN	Color TFT	
	Single		Single	12 bit	18 bit
	4 bit	8 bit	8 bit		
FRP	FRAME (VSYNC)				
LIP	LINE (HSYNC)				
CLP	SHIFT (CLK)				
M	MOD (M)			DRDY (DE)	
DEN	DEN (/DISP OFF)			---	
R0	---	---	---	---	R0
R1	---	---	---	---	R1
R2	---	---	---	R0	R2
R3	---	---	---	R1	R3
R4	---	---	---	R2	R4
R5	---	---	---	R3	R5
G0	---	D5 (LD1)	D5	---	G0
G1	---	D4 (LD0)	D4	---	G1
G2	---	---	---	G0	G2
G3	---	---	---	G1	G3
G4	---	---	---	G2	G4
G5	---	---	---	G3	G5
B0	D3	D3 (UD3)	D3	---	B0
B1	D2	D2 (UD2)	D2	---	B1
B2	D1	D1 (UD1)	D1	B0	B2
B3	D0	D0 (UD0)	D0	B1	B3
B4	---	D7 (LD3)	D7	B2	B4
B5	---	D6 (LD2)	D6	B3	B5
+/- V _{EE} Contrast-Voltage	+/- V _{EE}			---	

--- ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

2.9 J4 FS-Bus (8 bit Extension Interface)

J4 Parallel Extension Interface		
Pin	Signal	Function
1	D0	Date Bit D0, I/O (*)
2	D1	Date Bit D1, I/O (*)
3	D2	Date Bit D2, I/O (*)
4	D3	Date Bit D3, I/O (*)
5	D4	Date Bit D4, I/O (*)
6	D5	Date Bit D5, I/O (*)
7	D6	Date Bit D6, I/O (*)
8	D7	Date Bit D7, I/O (*)
9	V _{IO}	IO Voltage, +3,3V or +5V (***)
10	RD	Read, output, active High (*)
11	nCS	Chip Select, output, active Low (*)
12	ADE	Address Enable, output, active High (*)
13	nIRQ	Interrupt, input, active Low (*)
14	nRES	Reset, input, active Low (**)
15	PWM	PWM-Signal (3,3V AHC-Level) (****)
16	GND	Signal Ground

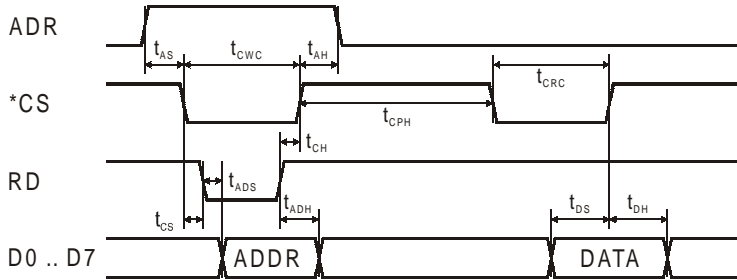
(*) ⇒ Input/output with pull-up resistors 4,7kΩ at +3,3V or +5V (see configuration parallel port).

(**) ⇒ Input with pull-up resistor 10kΩ at +3,3V.

(***) ⇒ See configuration of parallel port.

(****) ⇒ See configuration of PWM-Signal.

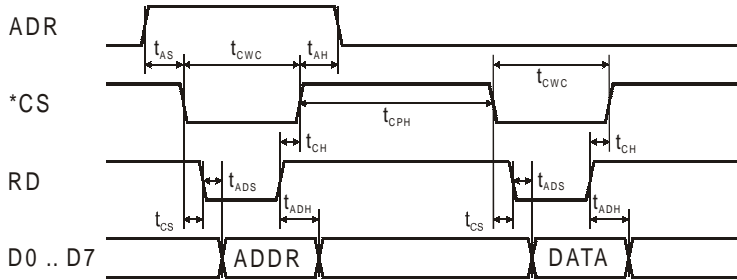
2.9.1 FS-Bus Timing Read Cycle



Item	Symbol	Min.	Typ.	Max.	Unit
ADR set up time	t_{AS}	20	-	-	ns
ADR hold time	t_{AH}	20	-	-	ns
CS cycle write time	t_{CWC}	80	-	-	ns
CS set up time	t_{CS}	0	-	-	ns
CS hold time	t_{CH}	0	-	-	ns
ADR set up time	t_{ADS}	-2	-	2	ns
ADR hold time	t_{ADH}	0	-	-	ns
CS pulse high width	t_{CPH}	100	-	-	ns
CS cycle read time	t_{CRC}	80	-	-	ns
DATA set up time	t_{DS}	20	-	-	ns
DATA hold time	t_{DH}	0	-	-	ns

All timing values shown in this table are typical. On Windows Embedded CE these values can be adapted!

2.9.2 FS-Bus Timing Write Cycle



Item	Symbol	Min.	Typ.	Max.	Unit
ADR set up time	t_{AS}	20	-	-	ns
ADR hold time	t_{AH}	20	-	-	ns
CS cycle write time	t_{CWC}	80	-	-	ns
CS set up time	t_{CS}	0	-	-	ns
CS hold time	t_{CH}	0	-	-	ns
ADR set up time	t_{ADS}	-2	-	2	ns
ADR hold time	t_{ADH}	0	-	-	ns
CS pulse high width	t_{CPH}	100	-	-	ns

All timing values shown in this table are typical. On Windows Embedded CE these values can be adapted!

2.10 J5 Matrix Keyboard

J5 Matrix Keyboard			
Pin	Signal	Function	I/O
1	---		
2	GPIO7	Row 7 – Matrix key	O
3	GPIO6	Row 6 – Matrix key	O
4	GPIO5	Row 5 – Matrix key	O
5	GPIO4	Row 4 – Matrix key	O
6	GPIO3	Row 3 – Matrix key	O
7	GPIO2	Row 2 – Matrix key	O
8	GPIO1	Row 1 – Matrix key	O
9	GPIO0	Row 0 – Matrix key	O
10	GPIO9	Column 8 – Matrix key	I (*)
11	GPIO10	Column 9 – Matrix key	I (*)
12	---		
13	GPIO11	Column 10 – Matrix key	I (*)
14	---		
15	GPIO12	Column 11 – Matrix key	I (*)
16	GND	Signal Ground	Power
17	KBIN7	Column 0 – Matrix key	I (*)
18	KBIN6	Column 1 – Matrix key	I (*)
19	KBIN5	Column 2 – Matrix key	I (*)
20	KBIN4	Column 3 – Matrix key	I (*)
21	KBIN3	Column 4 – Matrix key	I (*)
22	KBIN2	Column 5 – Matrix key	I (*)
23	KBIN1	Column 6 – Matrix key	I (*)
24	KBIN0	Column 7 – Matrix key	I (*)
25	V _{CC}	+5V DC	Power
26	V _{DD}	+3,3V (0,1A max.) DC	Power

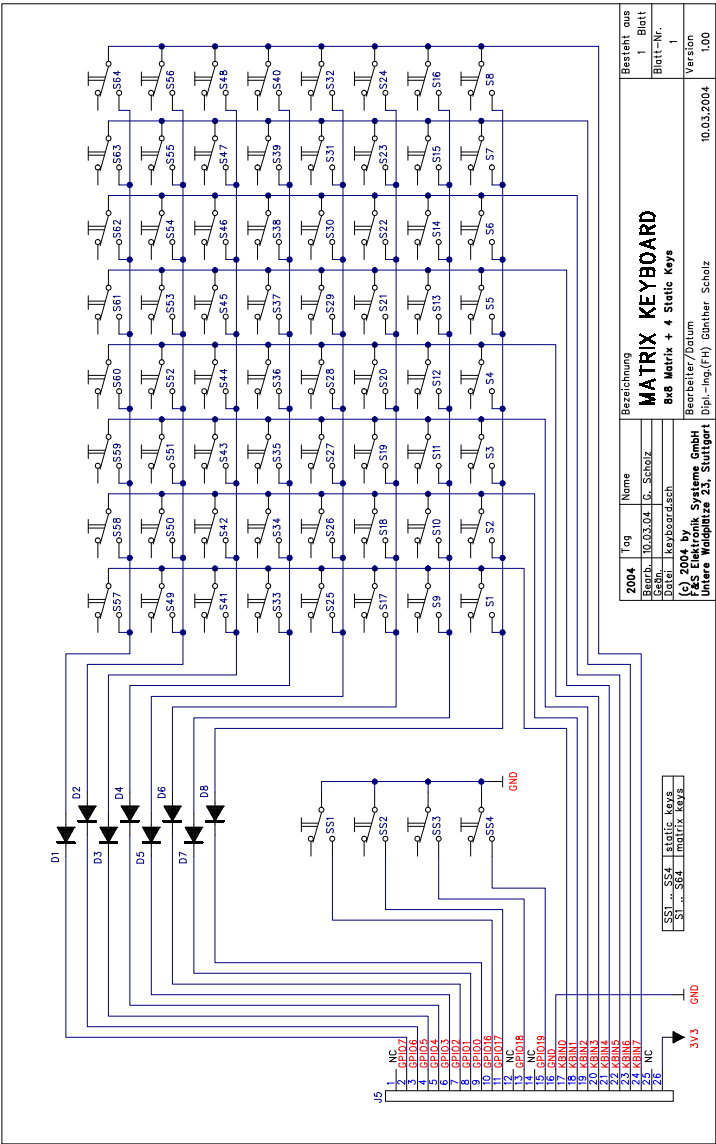
(*) ⇒ Note: I/O pins have a pull-up resistor 4,7kΩ at +3,3V.

(- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

All voltage levels of the input and output signals must be compatible to the LVC specification (3,3V, $I_{\max}=1\text{mA}$) !

2.10.1 Matrix Keyboard example connection

The following schematic (next page) shows the connection of a keyboard with a 8x8 matrix and four static keys.



2004		Name		Bezeichnung		Besteht aus	
Bearb.	10.03.04	IG_Scholz		MATRIX KEYBOARD		1	Blatt
Geht	10.03.04	IG_Scholz		8x8 Matrix + 4 Static Keys		1	Blatt-Nr.
DWG	10.03.04	IG_Scholz				1	Version
F&S Elektronik Systeme GmbH				Hersteller/Datum			
Untere Waldplätze 23, Stuttgart				Dipl.-Ing.(FH) Günther Scholz			
				10.03.2004			

S1 - S84	Matrix Keys
S1 - S84	Matrix Keys



2.11 J5 I/O Interface

J5 I/O Interface			
Pin	Signal	Function	I/O
1	GPIO8	Interrupt (IO-Port 8)	I/O (*)
2	GPIO7	IO-Port 7	I/O
3	GPIO6	IO-Port 6	I/O
4	GPIO5	IO-Port 5	I/O
5	GPIO4	IO-Port 4	I/O
6	GPIO3	IO-Port 3	I/O
7	GPIO2	IO-Port 2	I/O
8	GPIO1	IO-Port 1	I/O
9	GPIO0	IO-Port 0	I/O
10	GPIO9	IO-Port 9	I/O (*)
11	GPIO10	IO-Port 10	I/O (*)
12	- - -		
13	GPIO11	IO-Port 11	I/O (*)
14	- - -		
15	GPIO12	IO-Port 12	I/O (*)
16	GND	Signal Ground	Power
17	KBIN7	Input-Port 7	I (*)
18	KBIN6	Input-Port 6	I (*)
19	KBIN5	Input-Port 5	I (*)
20	KBIN4	Input-Port 4	I (*)
21	KBIN3	Input-Port 3	I (*)
22	KBIN2	Input-Port 2	I (*)
23	KBIN1	Input-Port 1	I (*)
24	KBIN0	Input-Port 0	I (*)
25	V _{CC}	+5V DC	Power
26	V _{DD}	+3,3V (0,1A max.) DC	Power

(*) ⇒ Note: I/O pins have a pull-up resistor 4,7kΩ at +3,3V.

(- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

All voltage levels of the input and output signals must be compatible to the LVC specification (3,3V, $I_{\max}=1\text{mA}$) !

2.12 J5 SPI-Interface

J5 SPI-Interface			
Pin	Signal	Function	I/O
1	---		
2	SPICLK	SPI, Data clock	O
3	SPIMOSI	SPI, Master out, Slave in	O
4	SPIMISO	SPI, Master in, Slave out	I
5	---		
6	SPIFRM	SPI, Frame (Chip select)	O
.	---	.	.
.	.	.	.
.	.	.	.
16	GND	Signal Ground	Power
.	---	.	.
.	.	.	.
.	.	.	.
25	V _{CC}	+5V DC	Power
26	V _{DD}	+3,3V (0,1A max.) DC	Power

(- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

All voltage levels of the input and output signals must be compatible to the LVC specification (3,3V, I_{max}=1mA) !

2.13 J5 I2C-Interface

J5 I2C-Interface			
Pin	Signal	Function	I/O
1	- - -		
.	- - -	.	.
.	.	.	.
.	.	.	.
10	I2C-DATA	I2C Data	I/O
11	I2C-CLK	I2C Clock	O
.	- - -	.	.
.	.	.	.
.	.	.	.
16	GND	Signal Ground	Power
.	- - -	.	.
.	.	.	.
.	.	.	.
25	V _{CC}	+5V DC	Power
26	V _{DD}	+3,3V (0,1A max.) DC	Power

(- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

All voltage levels of the input and output signals must be compatible to the LVC specification (3,3V, I_{max}=1mA) !

2.14 J5 Serial RS232 Port B

J5 Serial RS232 Port B			
Pin	Signal	Function	I/O
1	- - -		
.	- - -	.	.
.	.	.	.
.	.	.	.
12	RxD2	Received Data	I
13	- - -		
14	TxD2	Transmitted Data	O
15	- - -		
16	GND	Signal Ground	Power
.	- - -	.	.
.	.	.	.
.	.	.	.
25	V _{CC}	+5V DC	Power
26	V _{DD}	+3,3V (0,1A max.) DC	Power

(- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

2.15 J7 Serial RS232 Port C

J7 Serial RS232 Port C			
Pin	Signal	Function	I/O
1	- - -		
.	- - -	.	.
.	.	.	.
.	.	.	.
9	RxD3	Received Data	I
10	TxD3	Transmitted Data	O
.	- - -	.	.
.	.	.	.
.	.	.	.
13	V _{CC}	+5V DC	Power
14	GND	Signal Ground	Power
.	- - -	.	.
.	.	.	.
.	.	.	.
19	V _{DD}	+3,3V (0,1A max.) DC	Power
.	- - -	.	.
.	.	.	.
.	.	.	.

(- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

2.16 J7 Touchpanel-Interface

J7 Touchpanel-Interface		
Pin	Signal	Function
1	- - -	
.	- - -	.
.	.	.
.	.	.
13	V_{CC}	+5V DC
14	GND	Signal Ground
15	TOUCH X+	X- Voltage Measurement
16	TOUCH Y+	Y- Voltage Measurement
17	TOUCH X-	X- Set Active Measurement
18	TOUCH Y-	Y- Set Active Measurement
19	V_{DD}	+3,3V DC
20	GND	Signal Ground
.	- - -	.
.	.	.
.	.	.
26	- - -	

(- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

2.17 J7 USB-Interface 1

J7 USB-Interface 1		
Pin	Signal	Function
1	---	
.	---	.
.	.	.
13	V _{CC}	+5V DC
14	GND	Signal Ground
.	---	.
.	.	.
19	V _{DD}	+3,3V DC
20	GND	Signal Ground
21	---	
22	---	
23	M2	USB negative
24	P2	USB positive
25	---	
26	W2	USB Power Supply

(- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

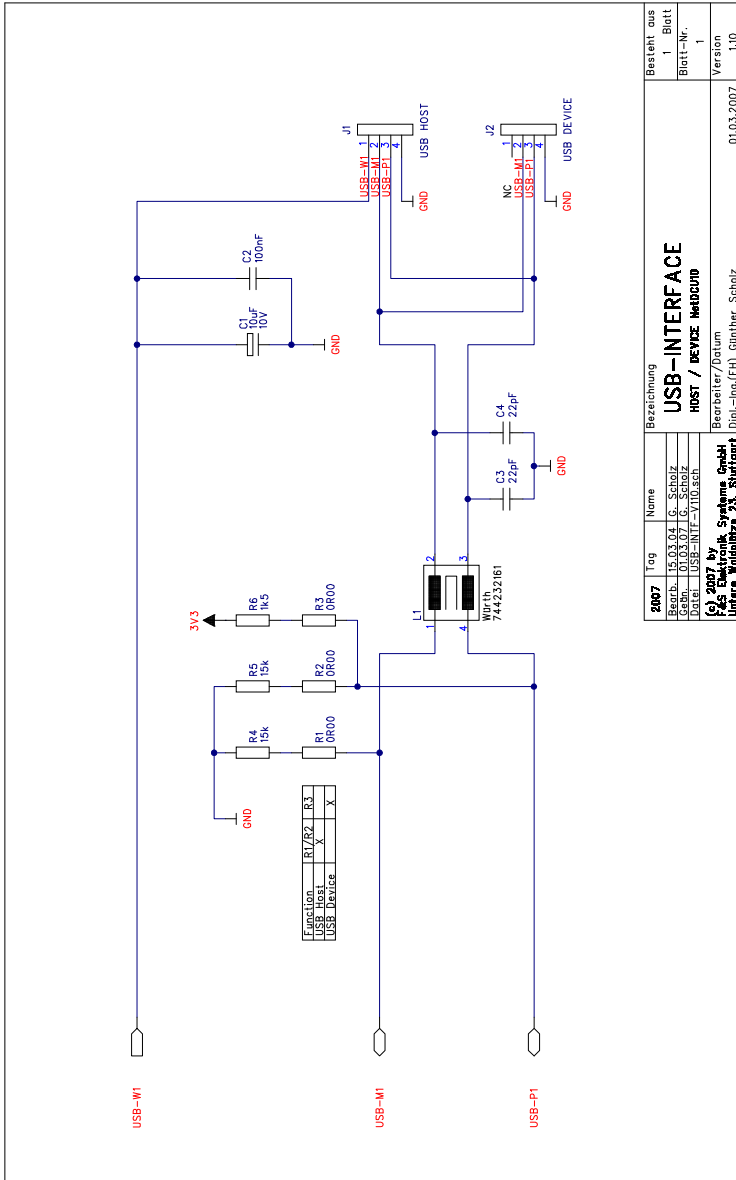
2.18 J7 USB-Interface 2

J7 USB-Interface 2		
Pin	Signal	Function
1	- - -	
.	- - -	
.	.	
13	V _{CC}	+5V DC
14	GND	Signal Ground
.	- - -	.
.	.	.
19	V _{DD}	+3,3V DC
20	GND	Signal Ground
21	M1	USB negative (Host/Device)
22	P1	USB positive (Host/Device)
23	- - -	
24	- - -	
25	W1	USB Power Supply (Host)
26	- - -	

(- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

2.18.1 Example USB-Interface (Host/Device)

The following schematic (next page) shows the usage of the USB host or device interface.



2607		Tag		Name		Bezeichnung		Besteht aus	
Bearb.	15.03.04	G. Scholz				USB-INTERFACE		1 Blatt	
Gepr.	03.03.07	G. Scholz				HOST / DEVICE HARDWARE		Blatt-Nr.	
Gepr.	05.09.11	S. Witten						Version	
16.03.2007 by F&S Elektronik Systeme GmbH Untere Waldpitzen 23, Stuttgart						Bearbeiter/Datum Dipl.-Ing.(FH) Gunter Scholz		Version 1.10	

2.19 J7 Audio Interface

J7 Audio Interface		
Pin	Signal	Function
1	LINEOUT-L	Line out left channel
2	LINEOUT-R	Line out right channel
3	GND	Signal Ground
4	LINEIN-L	Line in left channel
5	LINEIN-R	Line in right channel
6	GND	Signal Ground
7	MIC	Microphone input
8	MICGND	Signal Ground (Microphone)
.	---	.
.	.	.
13	V _{CC}	+5V DC
14	GND	Signal Ground
.	---	.
.	.	.
19	V _{DD}	+3.3V DC
20	GND	Signal Ground
.	---	.
.	.	.
26	---	

(- - -) ⇨ Please note: These pins carry active signals. Any invalid connection of these signals may result in unexpected behavior or even destruction of the component

2.20 J7 Analog Input

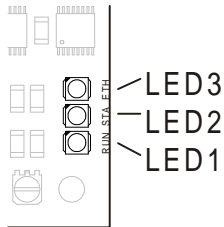
J7 Analog Input		
Pin	Signal	Function
1	- - -	
.	- - -	.
.	.	.
9	AD2	Analog Input 2 (*) / altern. RxD3
10	AD3	Analog Input 3 (*) / altern. TxD3
11	AD0	Analog Input 0 (*)
12	AD1	Analog Input 1 (*)
13	V _{CC}	+5V DC
14	GND	Signal Ground
.	- - -	.
.	.	.
19	V _{DD}	+3,3V DC
20	GND	Signal Ground
.	- - -	.
.	.	.
26	- - -	

- (*) ⇒ Input voltage: 0V to 3,3V
AD-Converter: 10 Bit resolution, Error ±1 LSB
47kΩ pull-down resistor to GND.
- (- - -) ⇒ Attention: These pins carry active signals. *Any Invalid contact of these signals may result in disfunctions or even damage the board!*

3 Status Indicators

The NetDCU10 comprises three LED status indicators. They are located on top of the board (in the bottom right corner).

Figure 3.1: Status LED



The following status information is displayed:

Status LED		
LED	Signal	Description
1	RUN	CPU in Run-Modus
2	STATUS	Status indicator (siehe SW-Dokumentation)
3	LINK	Ethernet: connection online

4 Configuration NetDCU10

By hardware-configuration of NetDCU10 some settings for peripheral devices could be done.

Figure 4.1: Top view

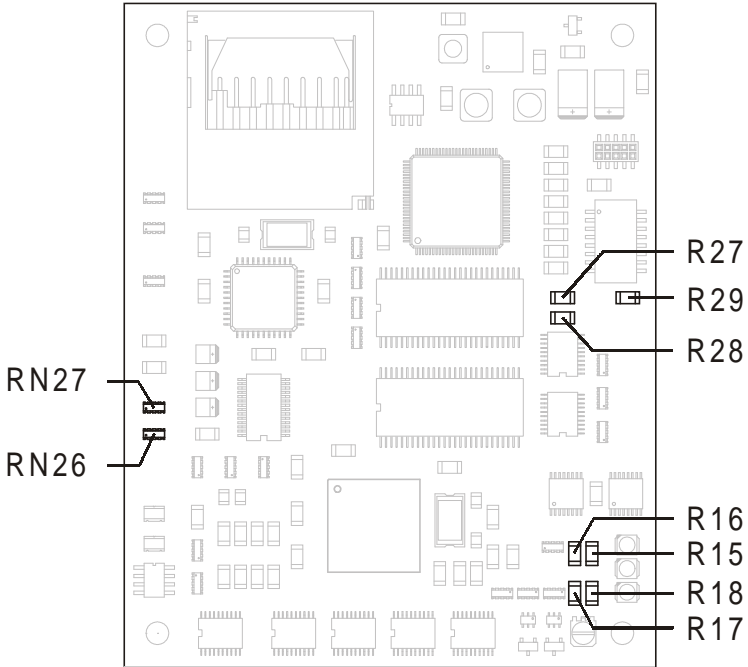
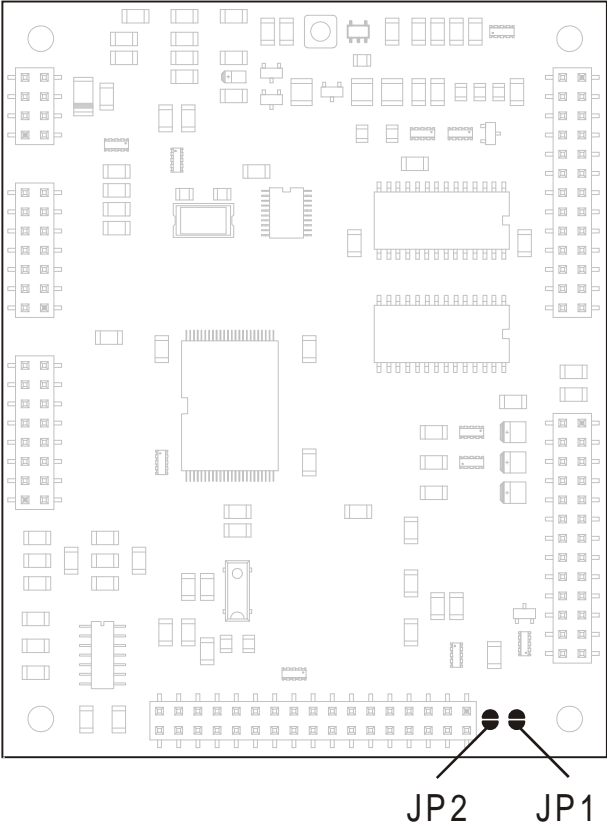


Figure 4.2: Bottom view



The following table shows all possible configurations. The positions of the solid bridges can be taken from the schamtics above (see configuration NetDCU10).

Configuration	R15	R16	P1	R17	R18
V _{ADJ} positive V _{EE} Adjustment	X	-	X	X	X
V _{ADJ} negative (*) V _{EE} Adjustment	-	X	X	X	X

Es gilt: V_{EE} Contrast-Voltage
V_{ADJ} V- Adjust voltage (V_{BIAS}/V₀)
(*) Default configuration
P1 Trim-potentiometer 10kΩ
Rxx Solid bridge, 0Ω Resistor,
Type 1206

4.2 Configuration FS-Bus

High-Level of extension interface (FS-Bus, J4) could be set by solder bridges R27 and R28 at 5V respectively 3.3V.

Configuration	Rxx
5V I/O Parallel interface (*)	R27
3.3V I/O Parallel interface	R28

Meaning: (*) Default setting
Rxx Solder bridge, 0Ω Resistor,
Type 1206

4.3 Configuration PWM-Output

To enable the PWM output signal the following solid bridge is used. PWM signal will be output at connector J4, Pin 15.

Configuration	R29
PWM not enabled (*)	-
PWM enabled	X

Meaning: (*) Default settings
R29 Solder bridge, 0Ω Resistor,
Type 1206

4.4 Configuration RS232 Port C

With this option you can select between serial port 3 and two additional analog inputs on connector J7.

Configuration	RNx
AD2 / AD3, J7, Pin 9/10	RN27
RS232 Interface 3, J7, Pin 9/10 (*)	RN26

Es gilt: (*) Default setting
Rxx Resistor network, 4 x 0Ω Resistor,
Type 1206

5 Dimensions NetDCU10

Board thickness:	1,5 mm
Height of parts on top side:	6.0 mm
Height of parts on bottom side:	6.0 mm
Pin grid of connectors:	2.54 mm

Figure 5.1: Top view

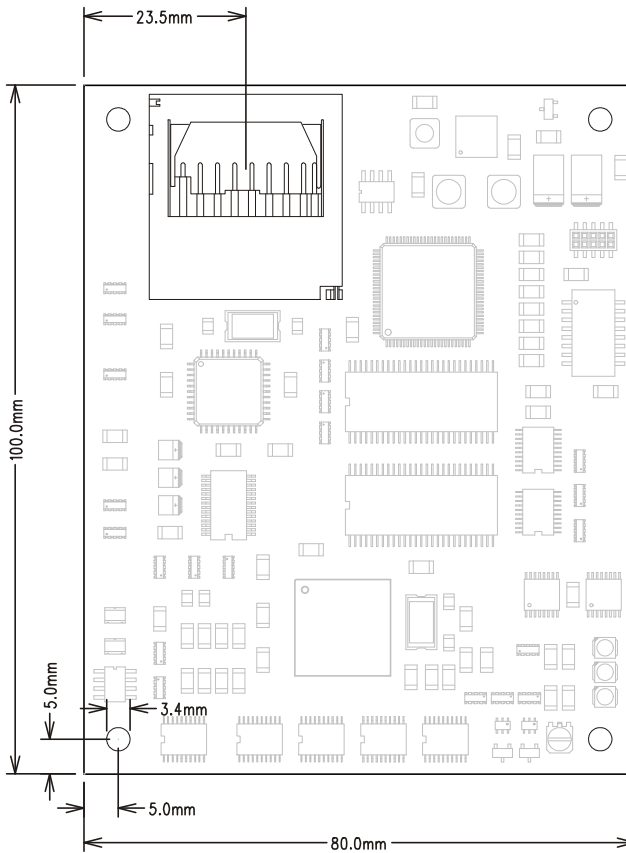
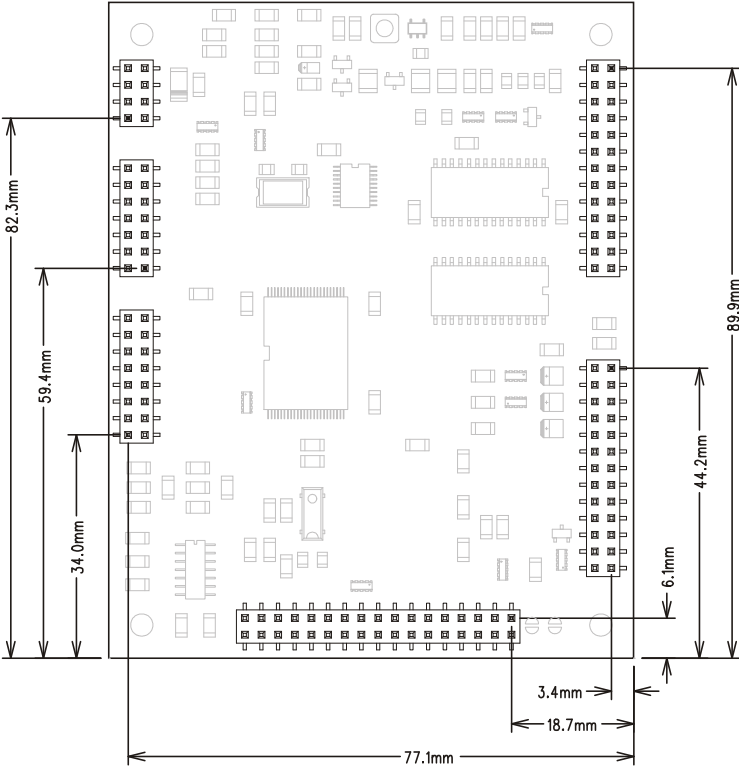


Figure 5.2: Bottom View



All values can have tolerances of $\pm 0,1\text{mm}$.

6 Technical Data NetDCU10

Power Supply:	+5V _{DC} / ±5%
Current Consumption:	≤ 0,2A (excluding Display)
Touch-Screen:	4 wire, analog resistive
Keyboard:	8 x 12 matrix keyboard
Inputs/Outputs:	max. 21 I/O- ports alternativ matrix keyboard 8 bit FS-Bus (HW Extension Bus) PWM-Signal 1x SD-Card-Slot 2x (4x)* analog inputs, 10 bit Audio Codec I2S
Interfaces:	3x RS232 - 1x with RTS/CTS - 1x RS232/RS485 2x USB1.1 (1x Host/Device) 1x Ethernet 10/100MBit (optional) 2x CAN2.0 (optional)
LCD Interface:	STN: up to 640x480 Pixel Single / Dual Scan 16 gray scales CSTN: up to 640x480 Pixel Single / Dual Scan 16/256 colors from 65536 TFT: up to 800x600 Pixel 256 / 65536 colors
RAM:	64 MByte SDRAM Optional: 128 MByte
Flash:	64 MByte Flash

CPU: Samsung S3C2440 400 MHz

Temperature: 0° C . . . +70° C
Optional: -25° C . . . +85° C

Dimensions: 100 x 80 x 11 mm (l x w x d)

Weight: 47 gr.

* ⇒ Note: If you want to use 4 analog inputs then serial line 3 (RS232 Port C) can't be used.

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