2A1 Component location (this page) and Component values (next page)
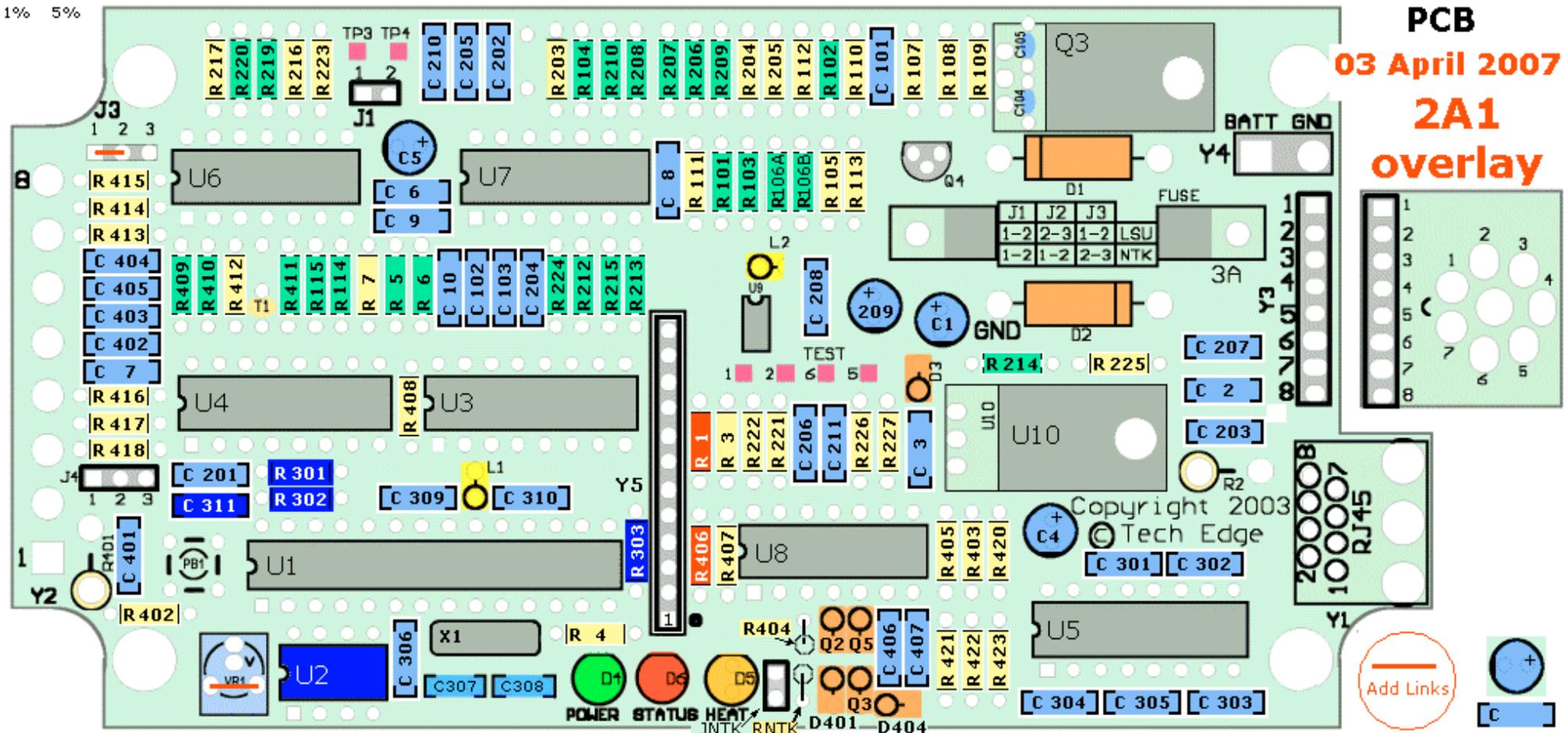
Note that the dark blue coloured parts (close to U1) should **not** be installed and the two red parts are installed on the solder side of the PCB (to make room for the logger module that fits onto header Y5.

MTP 3055

Install C104 & C105 on rear of PCB before MTP3055.

100nF
100nF

1N5822A

BATT

FUSE

Y4

J1 J2 J3

WRONG

LSU
NTK

3A

1N6283A
(1.5KE-33A)

GND

910R 1%   1K

LM7805

100nF

100nF

1nF

10R

Copyright 200
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100µF

100nF   100nF

U5   ST202
[16 PIN SOCKET]

470K 47K 27K

100nF   100nF   100nF

DIODE BANDS GO TOWARDS
MARKED RING ON OVERLAY

*J3
1 2 3
Link

10K
10K
10K

1nF
1nF
1nF

*100pF
100nF

100K
100K
100K

100nF
100nF

1 2 3

470nF

15K

10K

RPM

Link
5K (502)

U6 LMC6484
[14 PIN SOCKET]

U4 74HC4052
[16 PIN SOCKET]

1M

U3 74HC4052
[16 PIN SOCKET]

U1 ATMega8-16PC
[28 PIN SOCKET]

U2
[8 PIN SOCKET]

16MHz

X1

15pF   15pF

100nF

150R

Y5

GREEN   RED   AMBER
POWER   STATUS   HEAT

NTK

J-NTK
NTK shunt is ON for LSU

100R
68K 1%
15K 1%
1K
100R

3n3
560pF
22pF

TP3 TP4
1 2
J1

47µF

100nF
100nF

U7 LMC6484
[14 PIN SOCKET]

100K 1%
1K 1%
1K
T1
47K 1%
68K 1%
12K 1%
100R
15K 1%
10K 1%

100nF
1nF
1nF
100pF
150K 1%
30K 1%
150K 1%
30K 1%

1K
10K 1%
200K 1%
22K 1%
22K 1%
62R 1%
200K 1%
100R
*100R 1%
10K
30K 1%
1K
10nF
0.22R 0.22R 0.22R

100nF
10K
30K 1%
10K 1%
910R 1%
910R 1%
47K
1K

2N3904

10mH INDUCTOR

U9
DAC7612

100nF

*910R 1%

100µF   100µF
1N4007
GND

TEST
1 2 6 5

10mH INDUCTOR

100nF   100nF

1K5
47K

1K5
100R
22K
100nF
100nF
22K
100R
100nF

2K2
22K

47K
2K2

U8 LMC6484
[14 PIN SOCKET]

2K2 4K7 100K

100µF

100nF   100nF

1N4148

10K

1nF 10nF

82K

1N4007

1N4746A

1N4148

Refer to Notes

Update: 03 April 2007

Tech Edge Wideband O$_2$ Version 2A1 rev-4 PCB

000R 1%   1% RESISTOR
000R   5% RESISTOR
2K2   Not Installed
1K5   Installed on solder side

100nF   CAPACITOR

Note that the overlay shows 1% and 5% resistor values and that these should not be mixed. Start by installing the 1% resistors. It is possible we will substitute 5% resistors with 1% values (but not 1% with 5%).

2A1 Parts List

Semiconductors

1	ATMega168	**U1**	Atmel 16 kbyte AVR, with either LSU or NTK firmware
1	*	**U2**	not installed
2	74HC4052	**U3, U4**	
1	ST202	**U5**	RS232 driver
3	LMC6484	**U6, U7 U8**	Op-amp
1	DAC7612	**U9**	DAC (pre installed to PCB)
1	1N5822	**D1**	Schottky Diode (High current)
3	1N4148	**D402, D404, D405**	Small signal Diodes
2	1N4007	**D401, D3**	High Voltage/current Diode
1	1.5KE-33A	**D2**	Tranzorb transient surpressor
1	1N4746	**D403**	Small signal Zener Diode
1	MTP3055V	**Q3**	12A 60V analogue FET
1	2N3904	**Q4**	GP NPN transistor
1	7805	**U10**	TO220 5V Regulator
1	5mm LED	**D4**	GREEN
1	5mm LED	**D5**	AMBER
1	5mm LED	**D6**	RED

Resistors (all ¼ watt unless specified – 1% values shown first)

1	62R 1%	**R206**	
1	100R 1%	**R205**	(5% is OK for this part)
3/2	910R 1%	**R106A, R106B, R214**	
1	1k0 1%	**R410**	
3	10k 1%	**R6, R103, R104**	
1	12k 1%	**R114**	
2	15k 1%	**R5, R219**	
2	22k 1%	**R207, R208**	
4	30k 1%	**R101, R102, R212, R213**	
1	47k 1%	**R411**	
2	68k 1%	**R220, R115**	
1	82k 1%	**RNTK**	
1	100k 1%	**R409**	
2	150k 1%	**R215, R224**	
2	200k 1%	**R209, R210**	
3	0R22 5%	**R107, R108, R109**	
6	100R 5%	**R7, R204, R217, R222, R223, R227**	(5% may be substituted by 1% in some kits)
1	150R 5%	**R4**	
6	1k0 5%	**R110, R113, R203, R216, R225, R412**	
2	1k5 5%	**R1, R3**	
4	2k2 5%	**R405, R407**	
1	4k7 5%	**R403**	
7	10k 5%	**R111, R112, R402, R404, R413, R414, R415**	
3	22k 5%	**R221, R226**	
1	27k 5%	**R423**	
3	47k 5%	**R105, R406, R422**	
4	100k 5%	**R416, R417, R418, R420**	
1	100k 5%	**R419**	
1	470k 5%	**R421**	
1	1M 5%	**R408**	
1	10R 1W 5%	**R2**	
1	15k 1W 5%	**R401**	

Capacitors

2	15pF	**C307, C308**
1	22pF	**C202**
2	100pF	**C204, C402**
1	560pF	**C205**
7	1nF	**C102, C103, C203, C403, C404, C405, C406**
1	3n3	**C210**

2	10nF	**C101, C407**
1	470nF	**C401**
23	100nF	**C2, C3, C6, C7A, C8, C9, C10, C201, C206, C207, C208, C211, C301, C302, C303, C304, C305, C306A, C309, C310, SNUB1/C104, SNUB2/C105**
1	47µF	**C5**
3	100µF	**C1, C4, C209**
3	Not Installed	**C212, C7B, C306B**

IC Sockets

3	14 PIN	**U6, U7, U8**
3	16 PIN	**U3, U4, U5**
1	28 PIN	**U1**
2	FUSEHDR	**FUSE HOLDER**

Connectors

1	RJ45 socket	**Y1**
1	8 pin green male PCB mount	**Y2-M**
1	8 pin green in-line screw terminal socket	**Y2-F** mating female part
1	8 pin circular connector	**Y3**
1	DB9 female socket	
1	DB9 backshell kit with mounting bolts	
1	2 pin MOLEX 90° MiniFit PCB mount	**Y4**
1	2 Pin MOLEX MiniFit plug	mates with **Y4**
2	2 MOLEX MiniFit terminals	pins for **Y4**
1	13 Pin HEADER	for **J1** to **J4**

Other Electronics

1	main PCB	TE-WB2A0 (SOIC chip U9 pre-installed)
1	small PCB	transitional PCB for Y3
1	1Mb Module	12 pin logger module placed on Y5 single row header
2	10mH	**L1, L2** Inductor
1	47K @ 25°C	**T1** Thermistor
1	16MHz	**X1** CRYSTAL
1	3AG 3A	**FUSE**
1	PB1	**Switch** Press logging Button

Mounting

1	Grey ABS Plastic **case** (top & Bottom, rubber feet and 4 screws)
2	**case ends** (screen printed)
6	M3 **bolts** (4 for PCB to case, 2 for TO220 to PCB)
2	M3 **nuts** (for TO220 to PCB)
8	M3 star **washers** (4 for PCB to case, 2 for TO220 to PCB)
6	Gold plated test-point **pins** (TP1 to TP6)
4	**Shunts** (for J1 to J4)
1	**Cable tie** (for anchoring DB9 wires to shell)
1	2 m figure 8 **power cable**
1	50 cm two core grey cable with moulded RJ45 end (part of **RS232 cable**)