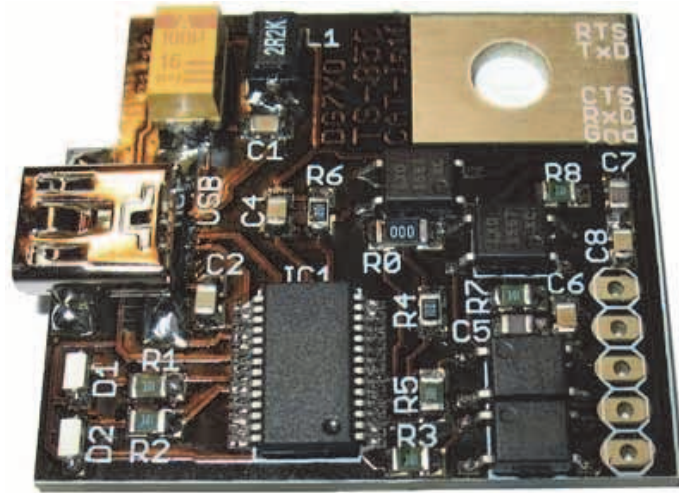


TS-850S USB CAT-Interface for built-in



status: 08.02.2013

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TS-850S USB CAT-Interface for built-in

The Kenwood Transceiver TS-850S (AT) is often used by contest operators. This interface enables the transceiver to communicate with a personal computer and the respective log-software.

The CAT-connection ACC1 on the transceiver only uses 5V TTL level and therefore direct connection of a PC is not possible. Level change and inverting the signals is essential, making the interface a bit more complex.

The described CAT-interface is not intended as a separate module, it will be installed into the transceiver. Therefore the socket ACC4 on the backside has to be removed and is replaced by the new printed circuit board. Normally the internal antenna tuner will be used and this makes the ACC4 socket on the transceiver obsolete. No mechanical work on the transceiver has to be done. The original ground connection is no longer used and provides the mounting for the new board.

The new interface unit uses a standard USB-to-series converter IC FT232RL within a SSOP28-housing. The 5 V power supply delivers the PC via the coil L1 and the data bus is isolated by optocouplers which also provides signal inverting. Two LEDs beside the mini-USB-socket indicate the data stream provided the configuration between PC and transceiver is correct.

Due to limited space only SMD component will be used, you don't need special tools but a magnifier can be helpful.

Ribbon cable is used to connect the four data bus lines and the ground to the old CAT-interface. The picture on page 9 shows the correct connections. To accomplish this, the upper phono connectors should be removed. Removing the complete rear panel makes the work a bit easier but please note that the antenna connector has to be unsoldered from the filter board first.

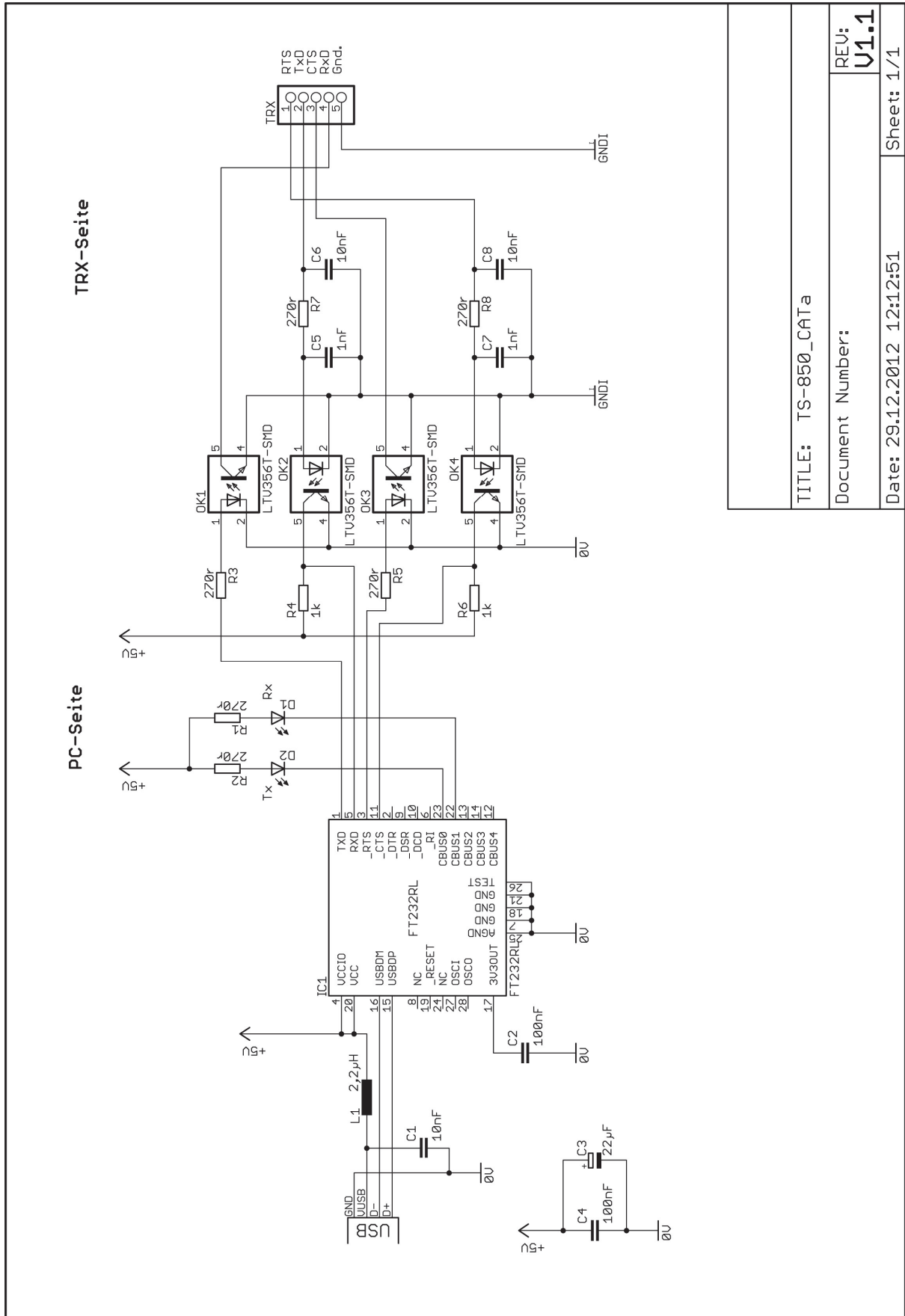
The little CAT-interface board could be installed in a separate housing and connected via cable and respective connectors, if the operator wants to do this.

The construction should be self-explanatory, if there is a problem, you can ask me.

Printed boards with solder-resist, gold plated and drilled are available in small quantities.

73 de Oliver, DG7XO

Schematic



TITLE: TS-850_CATA	REV: V1.1
Document Number:	
Date: 29.12.2012 12:12:51	Sheet: 1/1

Equipment list

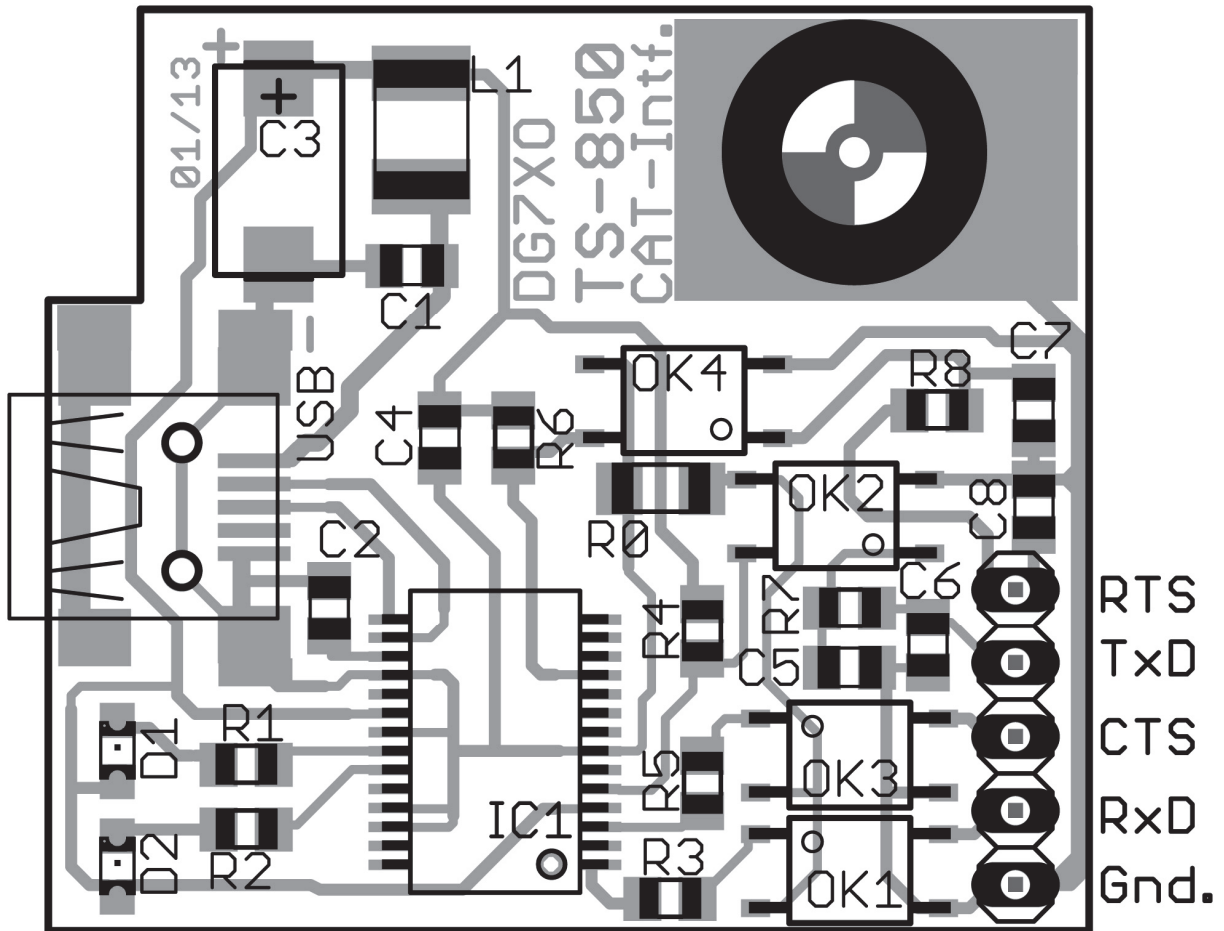
Part	Value	Package
R0	0r	1206
R1	270r	0805
R2	270r	0805
R3	270r	0805
R4	1k	0805
R5	270r	0805
R6	1k	0805
R7	270r	0805
R8	270r	0805
C1	10nF	0805
C2	100nF	0805
C3	22 μ F/10V	Tantal
C4	100nF	0805
C5	1nF	0805
C6	10nF	0805
C7	1nF	0805
C8	10nF	0805
D1	LED green	0805
D2	LED red	0805
OK1	LTV356T	SMD
OK2	LTV356T	SMD
OK3	LTV356T	SMD
OK4	LTV356T	SMD
L1	2,2 μ H	1812
IC1	FT232RL	SSOT28
Bu	USB Mini socket SMD	SMD
	Ribbon cable	

Order List

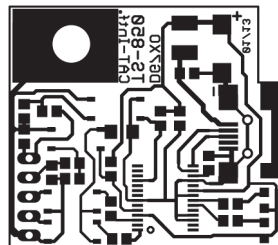
(Fa. Reichelt.de)

piece	Product no.	price / pcs.	price / sum
1	SMD 1/4W 0,0	0,10 €	0,10 €
6	SMD-0805 270	0,10 €	0,60 €
2	SMD-0805 1,00k	0,10 €	0,20 €
2	NPO-G0805 1,0N	0,05 €	0,10 €
3	X7R-G0805 10N	0,05 €	0,15 €
1	X7R-G0805 100N	0,05 €	0,05 €
1	SMD TAN.22/20	0,17 €	0,17 €
1	LS Y876	0,13 €	0,13 €
1	LG Y876	0,26 €	0,26 €
4	LTV 356T-SMD	0,27 €	1,08 €
1	L-1812AS 2,2μ	0,43 €	0,43 €
1	FT 232 RL	3,15 €	3,15 €
1	USB BWM SMD	0,24 €	0,24 €
			0,00 €
			0,00 €
		Sum:	6,66 €
Status 29.12.2012			

placement plan TOP

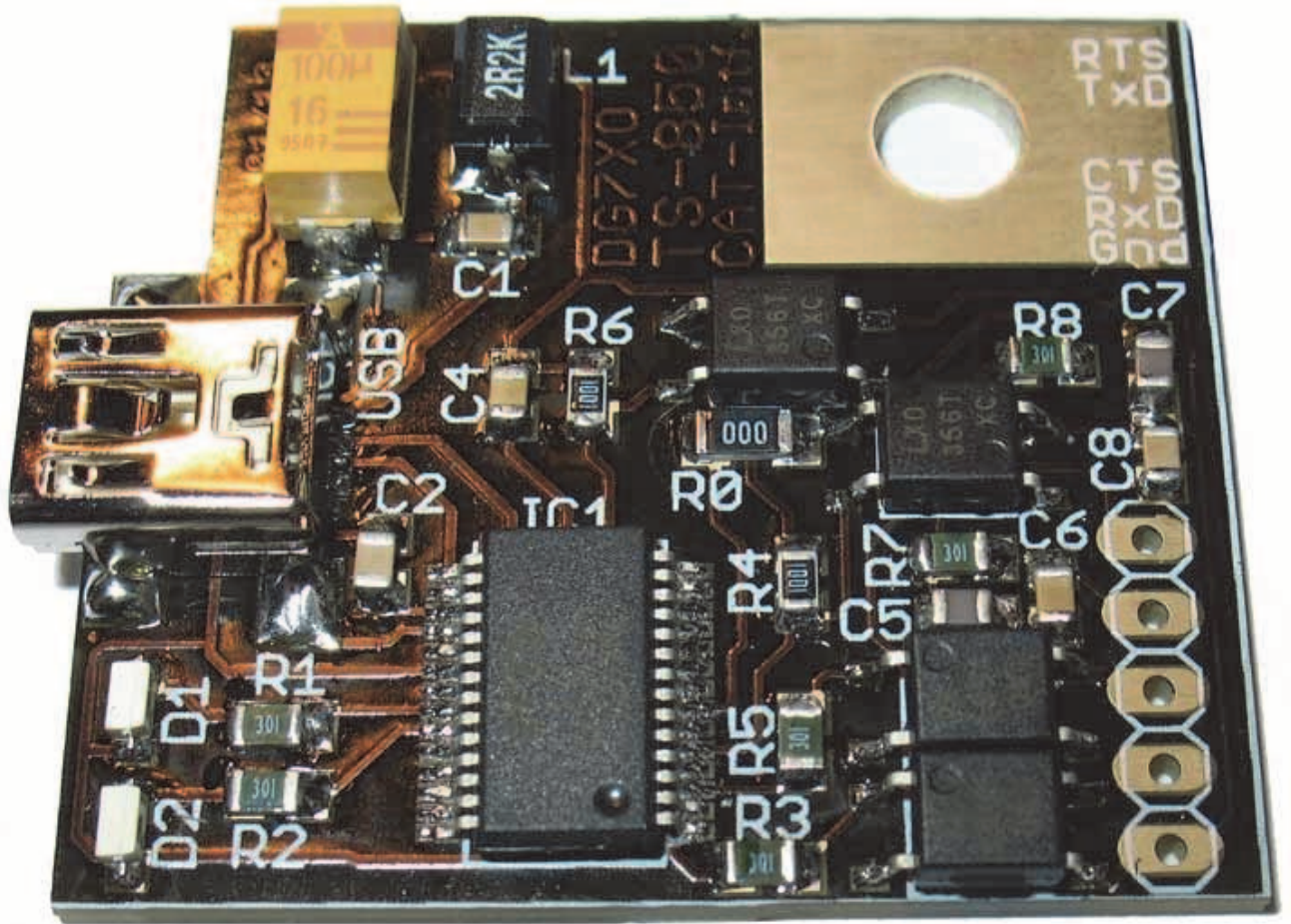


Layout

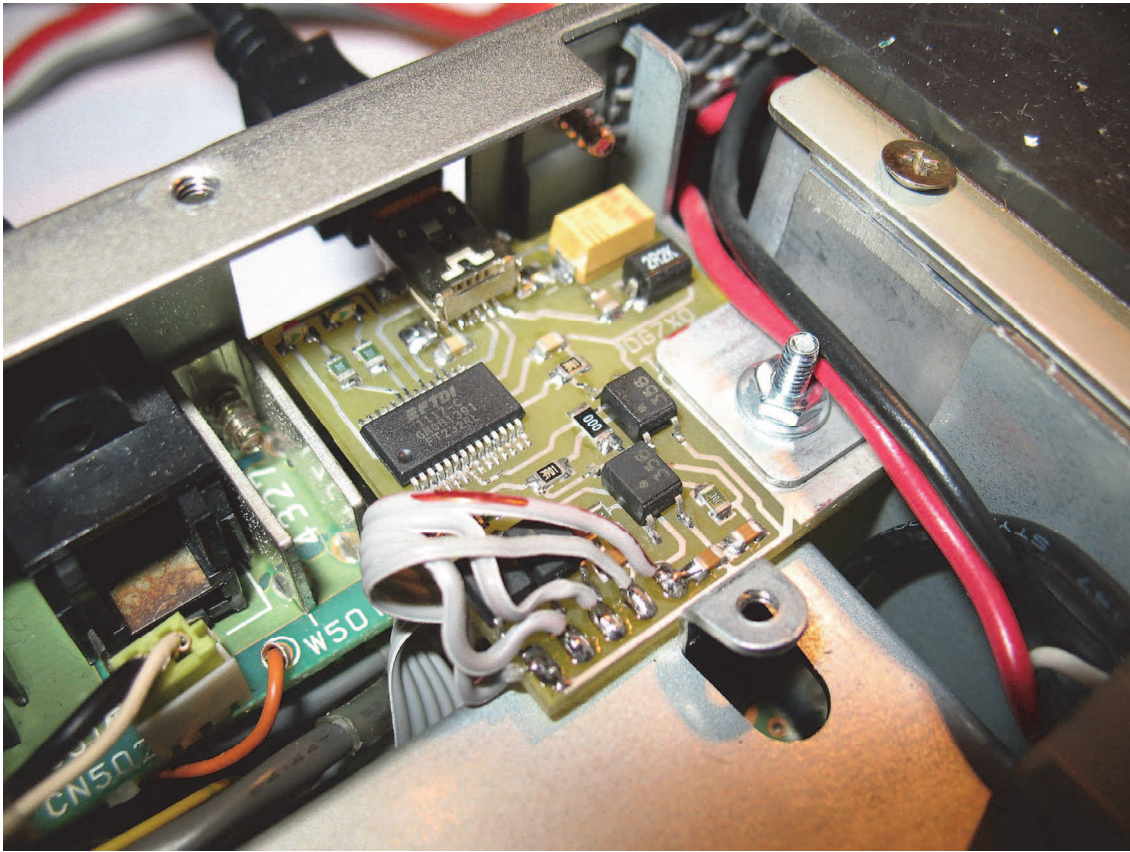


PCB Dimension: 36mm x 32mm

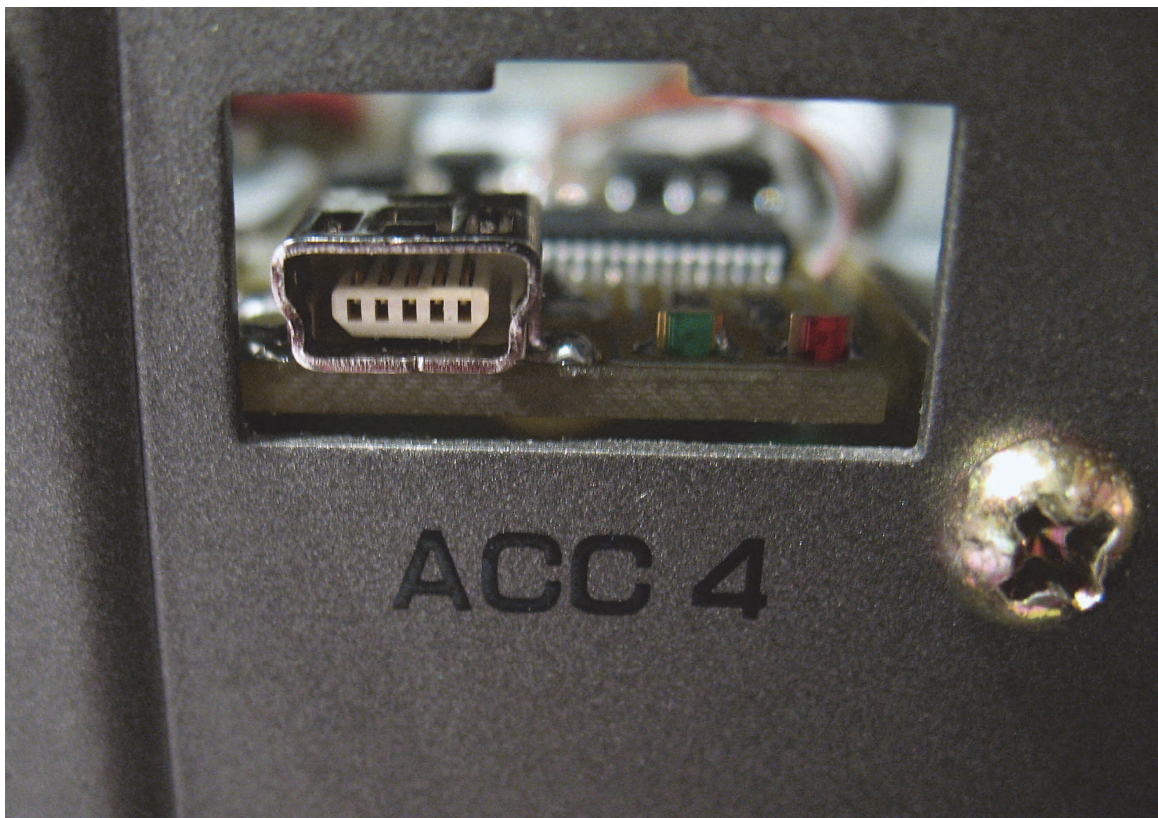
finished construction



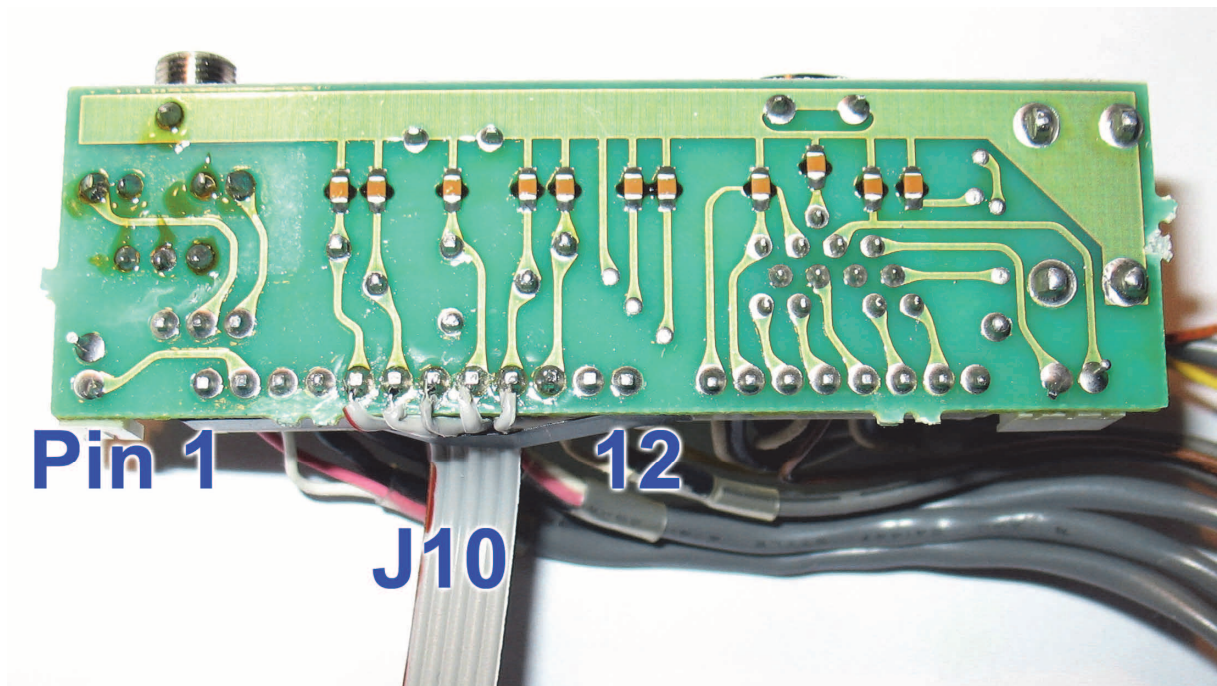
installed board



View from outside



Preview DIN socket from below



Pin 1 = TT
Pin 2 = TS
Pin 3 = GND
Pin 4 = GND
Pin 5 = RTS
Pin 6 = CTS
Pin 7 = GND
Pin 8 = RxD
Pin 9 = TxD
Pin 10 = DGD
Pin 11 = GND
Pin 12 = OBC

(See also page 179 in the Service Manual)

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