
AN1400.01

Application Note

RS232 Adapter board for the ACL PCB

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1. INTRODUCTION

This document describes the RS232 Adapter Board that connects the XEMICS' ACL PCB, a Bluetooth™ qualified reference design for ultra low power data applications to a 4 wire standard RS232 COM Port.

The RS232 interface represents the physical host controller interface between the Bluetooth™ Baseband Controller and the PC, hosting the Bluetooth upper protocol stack. This configuration can be used to test and validate the Bluetooth™ functionality of any data transfer software written for the XEMICS XE1400 series.

This document also includes the necessary information for the population of the ACL adapter PCB.

2. FUNCTIONAL DESCRIPTION

The EasyBlue™ ACL PCB consists of the XEMICS' Bluetooth™ Baseband controller (XE1402), Skyworks radio and a printed circuit antenna. All external components are on the PCB, only the power supply must be provided. The RS232 Adapter board provides the physical HCI interface between the XE1402 base band controller and a host controller such as a Personal Computer.

To establish a Bluetooth™ data link, Software Development, test and qualification of the higher Bluetooth™ protocol and application layers can be done completely independently from the lower protocol stack running on the XE1402.

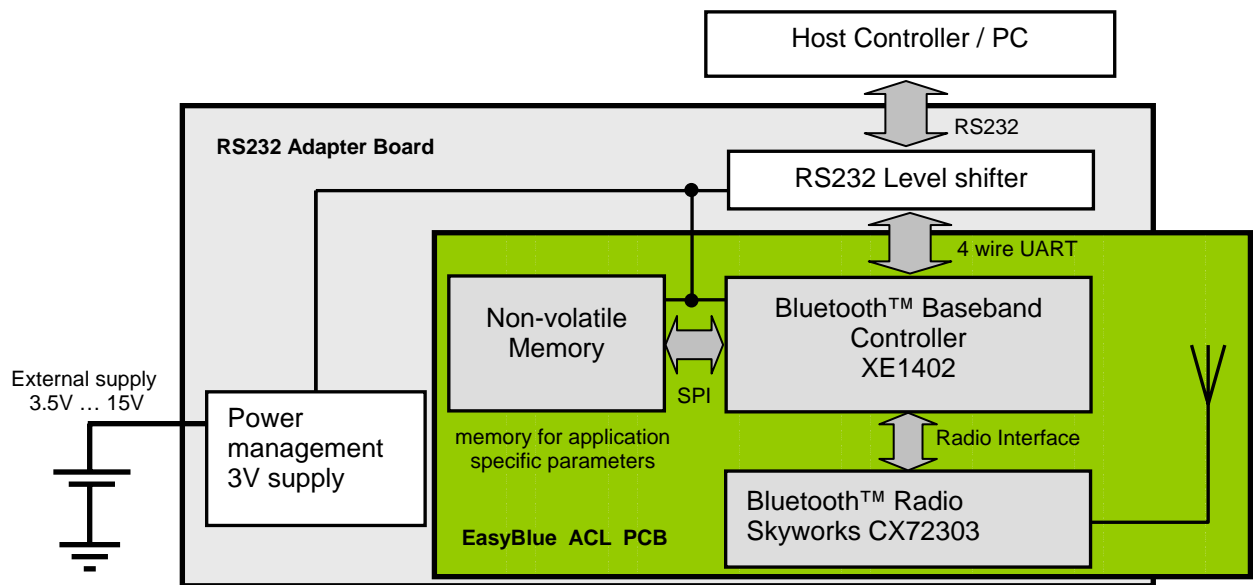


Figure 1: Block Diagram - Bluetooth™ Data Application using the ACL PCB and the RS232 Adapter board

Standard Microcontroller ANSI C development tools are required to include the required Bluetooth™ profile(s) and to develop the application layer functionality on the host processor.

Proven upper protocol Bluetooth™ stack software running on Personal Computers and several different microcontroller units, like Renesas - M16, Atmel – AVR and Texas Instruments – MSP430, can be provided from XEMICS upon request.

3. POPULATION OF THE RS232 ADAPTER BOARD

After populating the RS232 Adapter board with the components mentioned in section 5.2 BILL OF MATERIALS, the ACL PCB can be soldered on the adapter board. Soldering pads are placed on the RS232 Adapter Board to solder the ACL PCB directly onto the adapter board.

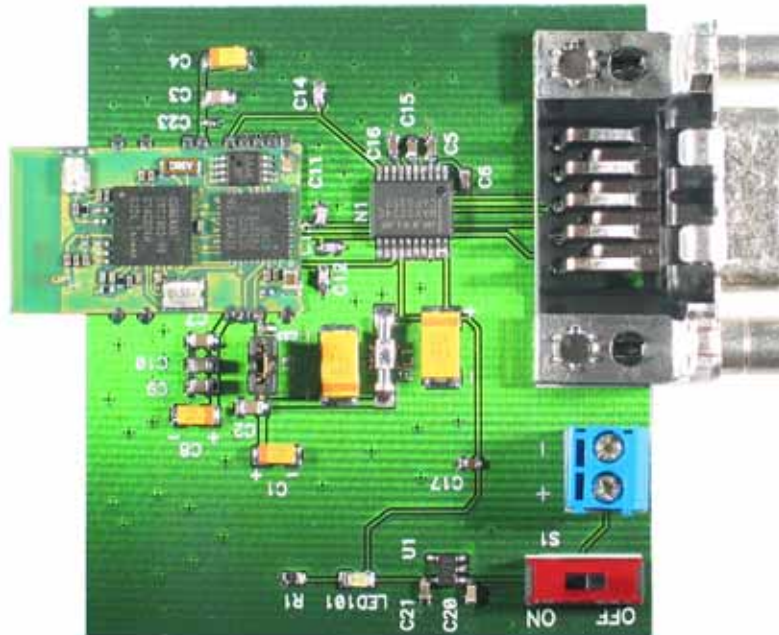


Figure2 – Complete RS232 Adapter board populated with ACL PCB.

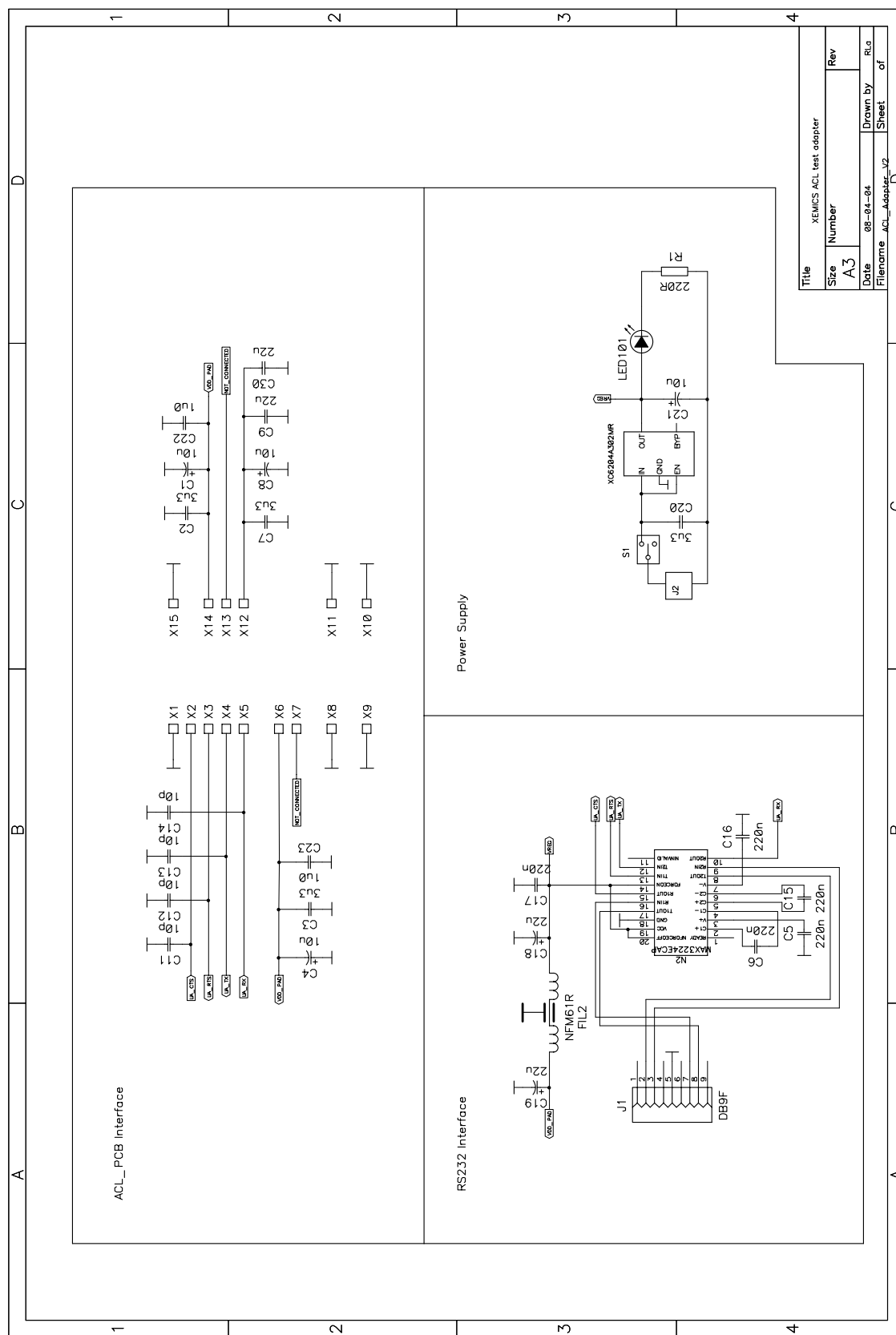
For the supply, a linear voltage regulator is on the RS232 Adapter Board which provides a regulated 3V DC output. Please note that the input voltage range of this regulator is between 3.5V to a maximum 15V.

The jumper on the left can be used to measure the current consumption of the ACL board during different operation modes.

The switch disconnects the supply and does force a POR of the ACL PCB.

The RS232 serial connector can directly to interface any PC COM Port.

4. SCHEMATICS



5. BILL OF MATERIAL

Count	RefDes	ComponentName	Value	Farnell Order Code*
2	C22	C0402	1u0	
	C23	C0402	1u0	
1	C20	C0603	0.1uF	
1	C21	C0603	1uF	
4	C11	C0603	10p	
	C12	C0603	10p	
	C13	C0603	10p	
	C14	C0603	10p	
5	C5	C0603	220n	
	C6	C0603	220n	
	C15	C0603	220n	
	C16	C0603	220n	
	C17	C0603	220n	
3	C2	C0805	3u3	
	C3	C0805	3u3	
	C7	C0805	3u3	
2	C9	C0805	22u	
	C10	C0805	22u	
1	J2	CONN_2P_35		3784836
1	J1	DB9F		3417190
1	FIL1	NFE61PT	4.7nF	869960
1	R1	R0603	220R	
3	C1	TANTAL_A	10u	
	C4	TANTAL_A	10u	
	C8	TANTAL_A	10u	
2	C18	TANTAL_C	22u	
	C19	TANTAL_C	22u	
1	U1	XC6204	3V	3605838
1	N1	MAX3224ECAP		3012220

* www.farnell.com