

AD2-B

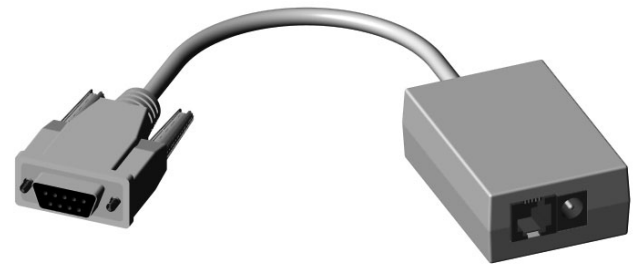
SEI to RS232 Adapter

Description:

The **AD2-B** adapter allows the RS485-like signal of **SEI** devices to interface to a standard RS232 port (9-pin DB), such as those in IBM compatible PCs. The **SEI** (Serial Encoder Interface) bus is a simple, quick and convenient network of **SEI** devices interfacing to a RS232 serial port. The **SEI** bus supports from 1 to 15 devices on a single 6-wire telephone-type cable, up to 1000 feet long. For more information on the **SEI** bus please see the **SEI** data sheet. The **AD2-B** has 2 differential signals to interface to **SEI** devices: the bidirectional data pair for communication, and the busy input pair for data flow control. The 9VDC power supply connects to the **AD2-B** and furnishes power for all **SEI** devices on the bus.

Attention: For older computers that require a 25-pin adapter, please see the **AD2-A** data sheet.

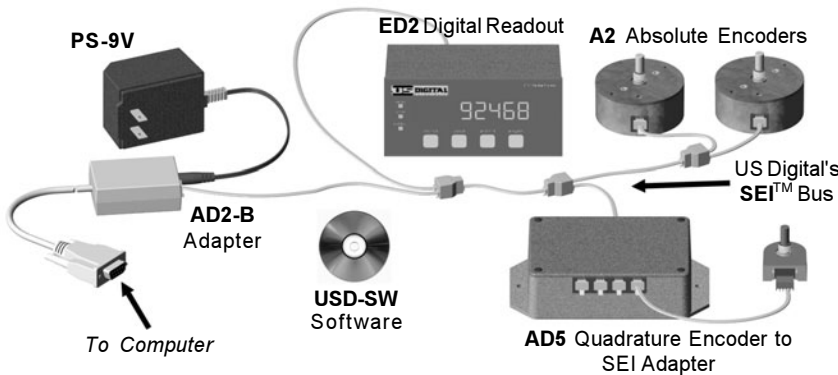
US Digital warrants its products against defects in materials and workmanship for two years. See complete warranty for details.



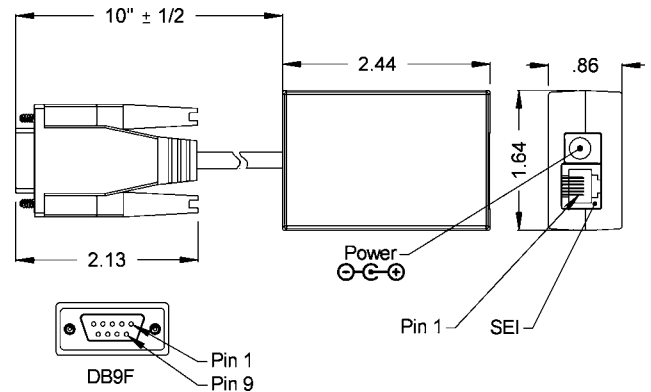
Absolute Maximum Ratings:

Parameter	Min.	Max.	Units
Storage Temperature	-40	100	°C
Operating Temperature	0	70	°C
Humidity (non-condensing)	0	95	%
120 VAC Input Power	-	6	Watts

Example SEI Network:



Mechanical Drawing:



Electrical Characteristics:

Parameter	Min.	Typ.	Max.	Units
Input voltage (into PS-9V)	100	-	130	VAC
Supply voltage (into AD2-A)	8.0	-	16	Volts
Supply current (without encoders)	-	-	15	mA
Differential output voltage* DataL - DataH , Busy+ - Busy-	2.0	-	10	Volts
Differential input voltage DataL - DataH , Busy+ - Busy-	0.2	-	14	Volts
Common mode output voltage* (DataH+DataL)/2, (Busy+Busy+)/2	-	2.5	3.0	Volts

* Load = 100 Ohms.

Electrical Characteristics:

Parameter	Min.	Typ.	Max.	Units
Common mode input voltage (DataH+DataL)/2, (Busy+Busy+)/2	-7.0	-	12	Volts
Input current (I _n = 0 to 5V)	-15	-	15	mA
DataH, DataL, Busy-, Busy+				
RS232 output high (RXD, BUSY)	5.0	8.0	-	Volts
RS232 output low (RXD, BUSY)	-	-8.0	-5.0	Volts
RS232 input high (TXD, DRIVE)	3.5	-	15	Volts
RS232 input low (TXD, DRIVE)	-15	-	0.4	Volts

➤ Specifications apply over entire operating temperature range.

➤ Typical values are specified at V_{cc}=12V and 25°C.

Ordering Information:

Price:

\$48 / 1
\$45 / 10
\$40 / 50
\$37 / 100
\$34 / 500
\$31 / 1K

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NP = No power supply.

Cost Modifiers:

Subtract \$5 for **NP**-option (no power supply).

Includes:

➤ PS-9V (9VDC power supply).

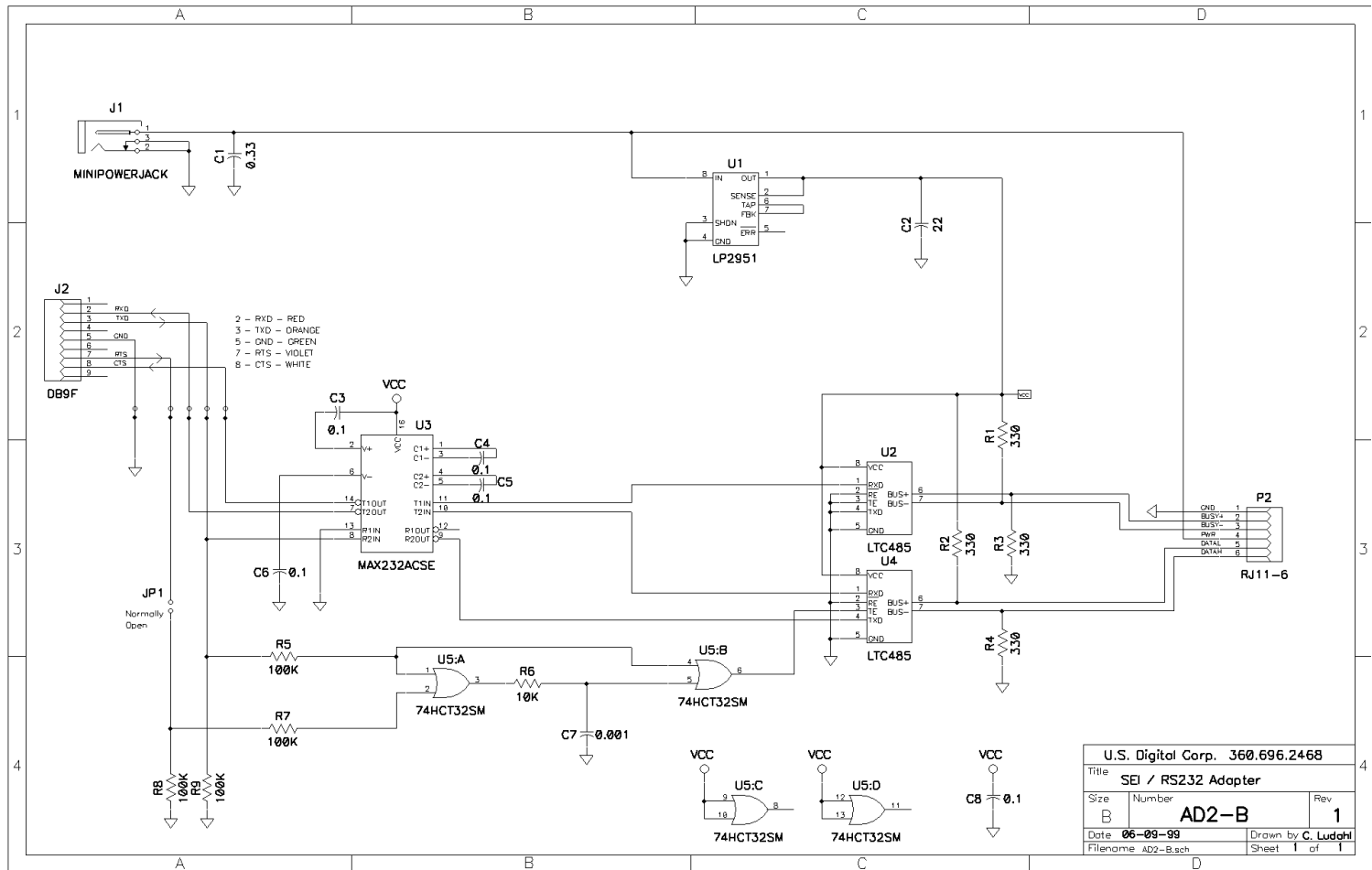
Technical Data, Rev. 04.02.03, April 2003
All information subject to change without notice.

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Functional Pin Description:

MOD-6	Name	Description	DSUB	Name	Description
1	GND	Ground, common for power, data & busy pairs.	2	TXD	Data input from host, normally low
2	Busy+	Differential input line, active high, has 330 Ohm pull down	3	RXD	Data output to host, normally low
3	Busy-	Differential input line, active low, has 330 Ohm pull up	7	RTS	Not connected
4	PWR	Power supply output to encoder bus	8	BUSY	Busy line to host, active low (CTS)
5	DataL	Bidirectional differential data line, has 330 Ohm pull up	5	GND	Ground, common for RS232 signals
6	DataH	Bidirectional differential data line, has 330 Ohm pull down			



Notes:

- 1) The lines busy+ and busy- are differential, but they should not be terminated. They are biased in the AD2 adapter with pull-up/down resistors to keep them in the inactive state (busy+ with 330 ohm to ground, busy- with 330 ohm to +5V) when they are not driven.
- 2) The lines dataL and dataH are RS485 differential lines; they do not need to be terminated for cables 1000 ft long at 19.2 kbaud (proportionally shorter at higher baud rates, i.e. 200 ft at 115 kbaud). They are biased in the adapter with pull-up/down resistors to keep them in the idle state (dataL with 330 ohm to +5V, dataH with 330 ohm to ground) when the bus is not driven. If terminated, make sure the lines are biased such that dataL is at least 2 volts above dataH.
- 3) The analog version of the A2 absolute encoder can be connected to this adapter, but the BUSY signal cannot be used for handshaking. Since the AD2 adapter loads these lines, the full analog voltage range will not be reached when connected to the AD2. If simultaneous serial communication and analog output is needed, the analog output line pair should be broken and intercepted before reaching the AD2.
- 4) The power supply requirement of the AD2 is 5.5 Volts min. This should be considered carefully when long cables are used, because of the voltage drop caused by the cable's resistance (a typical 26 AWG telephone-type cable is 40 Ohms per 1000 feet). For example, the AD2 provides 8 volts at minimum, which can support 2 encoders at 1000 feet of cable, or 4 encoders at 500 feet, etc.
- 5) The AD2-B has 2 differential signals to interface to the encoders: the bidirectional data pair for communication and the busy input pair for data flow control. The RS485 data transmitter of the AD2 is automatically enabled whenever the RS232 transmit line (TXD) goes high and for about 10 usec after it goes low. The busy input pair is connected to the BUSY (RS232 CTS) input of the host PC.
- 6) The power supply input is used for the internal circuitry and is connected to the SEI bus PWR line for the encoders.