AD-8524B

INSTRUCTION MANUAL

KEYBOARD ADAPTER

A&D

A&D Company, Limited

Outline and Functional Description

The AD-8524B is an adapter that allows the direct input of numerical data into a spreadsheet program running on an IBM compatible computer form an RS-232C instrument (such as an electronic balance). It connects between the computer and it's keyboard.

The AD-8524B is simple to set up and use. It requires only the installation of the cables and the setting of four switches that define how the data is input.

Features

- No need for complicated programming or operation. Connect the AD-8524B to your computer and instrument, set the switches to define the data format and start your program.

- No input mistakes. The AD-8524B directly enters the data as if the it was keyed in by hand.

- Regular computer keyboard functions. No need to disconnect the AD-8524B, the computers keyboard will function normally.

- Lotus 1-2-3, Excel and other software that will accept keyboard data will work using the AD-8524B.

- Direction of cell movement may be selected. You can set the AD-8524B to progress from cell to cell in a spreadsheet vertically, horizontally or not move at all.

Communications type		EIA RS-232C
Baud rate		2400/4800 bps
Data bits		7 bits
Parity bit		1 bit (even)
Stop bit		1 bit
Data format		ASCII
Terminators		LF (0AH) (CR, LF also available)
Pin connections	1	Frame ground
	3	Data input
	4, 5	Shorted
	7	Signal ground
Power source		5V (supplied by the computer)
Operating temperature		5°C to 40°C (41°F to 104°F)
Humidity		Less than 85% RH, non condensing
Dimensions		163W 134D 33H (mm)
Weight		320g (approx.)
Accessories		Instruction manual, Miniature phone plug
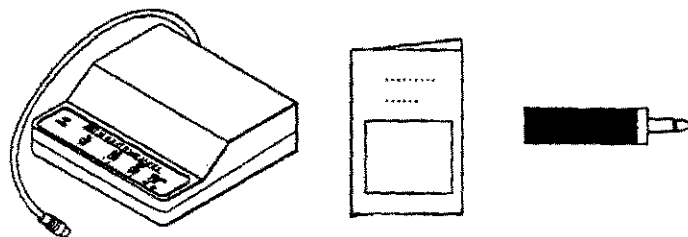
Fig.	Name	Description
1	Keyboard connector	The cable from the computer keyboard is connected here (Not needed for notebook type computers).
2	External input connector	A data entry command switch is connected if needed (For instruments that have no print key and output data in stream mode)
3	RS-232C connector	The instrument supplying the data is connected here.
4	Data output cable (75cm)	This is connected to the computer where the keyboard cable normally goes (For notebook type computers, consult your manual for instructions about connecting an external keyboard. This may require an adapter).
5	Power indicator	Indicates when the AD-8524B is connected properly and the computer is on.
6	CELL switch	Sets the direction of cell movement for the data to be entered into a spreadsheet.
7	MODE switch	Selects stream or command mode.
8	DATA switch	Sets the data type (A&D standard or other)
9	Baud rate	Sets the AD-8524B to the data rate of the instrument sending the data.
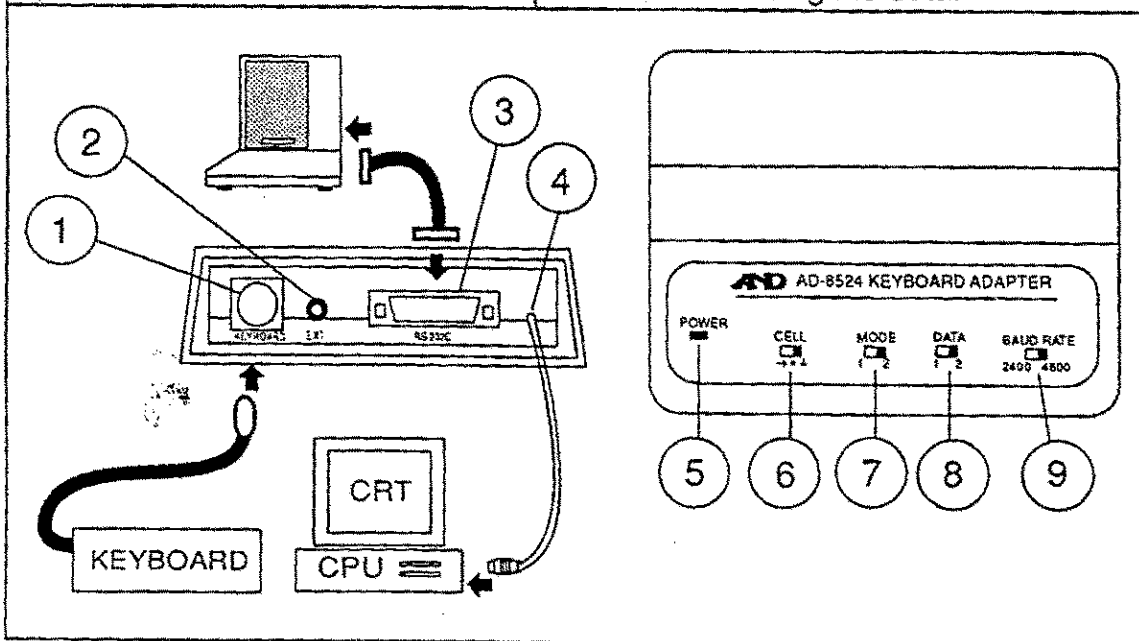
Preparations for Use

Connections

NOTES

- Turn off the computer while installing the AD-8524B. The computer or the AD-8524B could be damaged and data lost if the connections are made during normal operation of the computer.

- The IBM PS/V requires a special adapter for the keyboard as the connectors are smaller and not wired the same as the IBM AT or XT (this adapter can be prepared by a computer shop).

- Connect the computer, keyboard, measurement instrument and the AD-8524B following the "Parts Description" table.

Setting the Switches

NOTES

- Remove the plastic protection cover from the switches to set the various functions.

- To change the baud rate of the AD-8524B, the computer must be in the off position as this switch setting is only checked when the power is turned on (the first data set sent after the baud rate has been changed may be incorrect). All other switch settings may be changed with the power on.

CELL switch

NOTES

- If software other than Lotus 1-2-3 or Excel is used, set the CELL switch to the "." position.

- Some applications require that the cell position not move. If so, set the CELL switch to the "." position.

When data is sent, the cell in use moves as shown in the following table.

Switch position	Direction of cell movement
→	Right
.	Does not move
↓	Left

<u>MODE switch</u>

Set the MODE switch to the data output setting of the measuring instrument.

Switch position	Data output mode of the measuring instrument
1	Autoprint or keyboard print (Data is output only when the measuring instrument is commanded to output data. This can be a timed or autoprint command or simply by pressing the print key on a balance).
2	Stream output mode (where the measurement instrument sends the data continuously).

<u>Data switch</u>

Set the DATA switch to the type that fits the measurement instrument.

Switch position	Data output type of the measuring instrument
1	Stable data only (A&D standard data format. Data is input into the application only when the stability header is sent with the data).
2	Other formats (where there is no clear indication as to whether the data is stable or not).

A&D standard data format:

$$ST,+000.000 \; _{SP \; SP}g \; _{CR \; LF}$$

HEADER   DATA   UNIT   TERMINATOR

The header can be ST, WT, UW or AQ for stable, US for unstable or OL for overload. There can be signs (+ or -), numbers and a decimal point. The unit will consist of three characters (in this case 2 spaces and "g"). This is followed by the terminator.

This header is not passed to the application, but is used in the AD-8524B to determine if the data should be sent. The sign, data and decimal are passed to the application. The unit is not used by the AD-8524B and is not passed to the application. The terminator is used by the AD-8524B to determine when the data is to be passed to the application. The AD-8524B sends data to the application followed by "right arrow", "down arrow" or "return" determined by the setting of the CELL switch.

The length of the data string sent by the measuring instrument may be up to 32 characters including the terminator. If the string is longer than 32 characters, the AD-8524B will send the character selected by the CELL switch, then the remainder of the characters (or another group of 32 characters if the string is continuous).

NOTES

- If an error occurs in the data communications or the computer operation, turn the computer off then on again (If the computer is reset without complete shutdown, the AD-8524B will continue sending data to the computer and may cause errors).

- Only numbers and the symbols "+", "-", and "." are accepted as data.

- Leading zeros should be replaced by spaces if possible.

- If there is no leading zero before the decimal, the AD-8524B will add one.

- When the DATA switch is set to "2" and there is several pieces to the measured data, the code which was set by the CELL switch will be inserted between each measured value automatically.

- When using an external switch connected to the EXT. input connector to send the stream mode data to the application, there is a delay of approximately 0.1 second before a second closure of the switch will be effective.

- Data transmission; 0.1 second to transmit each character and 0.3 seconds to move from one cell to another.

Operating Procedure

1 Turn on the computer and the measurement instrument and any equipment associated with the measurements.

2 start the application software that the data will be placed into.

3 Place the cursor at the cell that is to be the first in the measurement series.

4 Start the measurements.

5 Send the data to the computer using the print key (or autoprint function) on the measurement instrument. If stream mode output is used by the measuring instrument, use a switch connected to the EXT. input connector to determine when to send the data to the computer (set the MODE switch to 2).

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