

Mouse Hardware

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Serial mouse

Voltage levels:

Mouse takes standard RS-232C output signals (+-12V) as its input signals. Those outputs are in +12V when mouse is operated. Mouse takes some current >from each of the RS-232C port output lines it is connected (about 10mA). Mouse send data to computer in levels that RS-232C receiver chip in the computer can uderstand as RS-232C input levels. Mouse outputs are normally something like +-5V, 0..5V or sometimes +-12V. Mouse electronics normally use +5V voltage.

Microsoft serial mouse

Pins used:

TD, RTS and DTR are used only as power source for the mouse.
RD is used to receive data from mouse.

Serial data parameters: 1200bps, 7 databits, 1 stop-bit

Data packet format:

Data packet is 3 byte packet. It is send to the computer every time mouse state changes (mouse moves or keys are pressed/released).

	D7	D6	D5	D4	D3	D2	D1	D0
1.	X	1	LB	RB	Y7	Y6	X7	X6
2.	X	0	X5	X4	X3	X2	X1	X0
3.	X	0	Y5	Y4	Y3	Y2	Y1	Y0

The byte marked with 1. is send first, then the others. The bit D6 in the first byte is used for synchronizing the software to mouse packets if it goes out of sync.

LB is the state of the left button (0 means pressed down)

RB is the state of the right button (0 means pressed down)

X7-X0 movement in X direction since last packet (signed byte)

Y7-Y0 movement in Y direction since last packet (signed byte)

Mouse systems mouse

Serial data parameters: 1200bps, 8 databits, 1 stop-bit

The data is sent in 5 byte packets in following format:

	D7	D6	D5	D4	D3	D2	D1	D0
1.	1	0	0	0	0	LB	CB	RB
2.	X7	X6	X5	X4	X3	X2	X1	X0
3.	Y7	Y6	Y5	Y4	Y3	Y4	Y1	Y0
4.								
5.								

LB is left button state (0=pressed, 1=released)

CB is center button state (0=pressed, 1=released)

RB is right button state (0=pressed, 1=released)

X7-X0 movement in X direction since last packet in signed byte format (-128..+127), positive direction right

Y7-Y0 movement in Y direction since last packet in signed byte format (-128..+127), positive direction up

The last two bytes in the packet (bytes 4 and 5) contains information about movement data send in last packet. I have not found exact information about those bytes. I have not also found any use for such a information (maybe it is for synchronization or something like that).