

## TWITTER PUNISHER

Typewriter/Arduino/Host command protocol

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Typewriter action is controlled by short alphanumeric text string commands sent to the device through a USB connection to an Arduino microcontroller. The number of actions available is limited (see below) and the major characteristic of the system is that it is very slow, from the host computer's point of view.

The host computer (a Windows 7 or Mac OS computer) is connected to the typewriter via USB. The host sends commands to the typewriter via USB serial. The typewriter sends responses to the host computer informing it of its status. The serial speed within the link must be 9600 bits/second.

Each command sent results in mechanical motion that takes finite time: a solenoid is operated, motion is induced, the solenoid turned off. Once a command has begun, the host computer must ensure that the typewriter is idle, before sending the next command; commands sent while the typewriter is busy will be ignored or lost without notification. It is the host computer software's job to ensure that this does not happen.

## COMMAND PROTOCOL

The entire time the typewriter is powered on and connected to the host computer, it periodically sends status responses to the host computer (actual interval TBD, but something like twice a second).

The responses are very simple: one-character "lines" of text (a letter followed by a CR, LF sequence). There are only three possible responses:

R  
B  
E

R is READY; the typewriter is idle, not in motion, and awaiting a command. B means BUSY, the typewriter is busy executing the previously-sent command. E means ERROR; something has gone wrong in a way that prevents the typewriter from operating. (At this time there are no known reasons to issue this response.)

From the host computer point of view, as soon as the typewriter is properly attached it sends a slow but steady stream of "R"s. If R is received it means the typewriter is alive and ready to go.

Once a command is sent to the typewriter (see below) the typewriter will respond with periodic "B"



and generally speaking, numbers are not transmissible down serial links. The quantity eg. 'one thousand twenty three' fits in one word inside the machine, but will not fit in a serial transmission unit (7-bit character) and must be sent as it's ASCII representation, eg. in this instance the four printable characters, literally, 1, 0, 2, 3 in order.

A simple “print” suffices. Therefore, to continue this example, to light up that quantity on four Nixie tubes the command to send to the typewriter consists of the five ASCII characters “N1023”.