# Microcontroller





Diagram, schematic

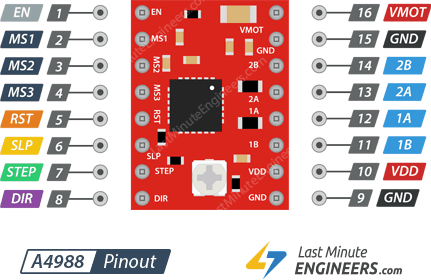
Description automatically generated

A picture containing text, person

Description automatically generated

<https://www.pjrc.com/teensy/schematic.html>

# A4988 Stepper Motor Driver



<https://lastminuteengineers.com/a4988-stepper-motor-driver-arduino-tutorial/>

# Pinout Table

|  |  |  |
| --- | --- | --- |
| Teensy 4.1 | Description | Terminal Connection |
| 0 | RX1 Communication with slave | Slave TX |
| 1 | TX1 Communication with slave | Slave RX |
| 7 | End stop micro switch: Feeder Secondary Tower | - |
| 8 | End stop micro switch: Feeder Primary Tower | - |
| 21 | Feeder Enable | Feeder A4988: EN |
| 20 | Feeder MS1 | Feeder A4988: MS1 |
| 19 | Feeder MS2 | Feeder A4988: MS2 |
| 18 | Feeder MS3 | Feeder A4988: MS3 |
| 17 | Feeder Reset | Feeder A4988: RST |
| 16 | Feeder Sleep | Feeder A4988: SLP |
| 15 | Feeder Step | Feeder A4988: STEP |
| 14 | Feeder Direction | Feeder A4988: DIR |
| 31 | Spindle Enable | Spindle A4988: EN |
| 32 | Spindle MS1 | Spindle A4988: MS1 |
| 39 | Spindle MS2 | Spindle A4988: MS2 |
| 38 | Spindle MS3 | Spindle A4988: MS3 |
| 35 | Spindle Reset | Spindle A4988: RST |
| 34 | Spindle Sleep | Spindle A4988: SLP |
| 37 | Spindle Step | Spindle A4988: STEP |
| 36 | Spindle Direction | Spindle A4988: DIR |

# Variables

*#define* Constants for Pins

|  |  |  |
| --- | --- | --- |
| Name | Description | Value |
| PIN\_RX | RX1 Communication with slave | 0 |
| PIN\_TX | TX1 Communication with slave | 1 |
| PIN\_END\_STOP\_2 | End stop micro switch: Feeder Secondary Tower | 7 |
| PIN\_END\_STOP\_1 | End stop micro switch: Feeder Primary Tower | 8 |
| PIN\_FEEDER\_EN | Feeder Enable | 21 |
| PIN\_FEEDER\_MS1 | Feeder MS1 | 20 |
| PIN\_FEEDER\_MS2 | Feeder MS2 | 19 |
| PIN\_FEEDER\_MS3 | Feeder MS3 | 18 |
| PIN\_FEEDER\_RST | Feeder Reset | 17 |
| PIN\_FEEDER\_SLP | Feeder Sleep | 16 |
| PIN\_FEEDER\_STEP | Feeder Step | 15 |
| PIN\_FEEDER\_DIR | Feeder Direction | 14 |
| PIN\_SPINDLE\_EN | Spindle Enable | 31 |
| PIN\_SPINDLE\_MS1 | Spindle MS1 | 32 |
| PIN\_SPINDLE\_MS2 | Spindle MS2 | 39 |
| PIN\_SPINDLE\_MS3 | Spindle MS3 | 38 |
| PIN\_SPINDLE\_RST | Spindle Reset | 35 |
| PIN\_SPINDLE\_SLP | Spindle Sleep | 34 |
| PIN\_SPINDLE\_STEP | Spindle Step | 37 |
| PIN\_SPINDLE\_DIR | Spindle Direction | 36 |
| SERIAL\_BAUD\_RATE | Serial Baud Rate | 115200 |

# Useful Links

* <https://learn.sparkfun.com/tutorials/getting-started-with-the-teensy?_ga=2.175231073.293969749.1616598367-1595943203.1611756249>
* <https://lastminuteengineers.com/a4988-stepper-motor-driver-arduino-tutorial/>
* <https://www.pjrc.com/store/teensy36.html>