datasheet: dsm501.pdf

DMS501A - 2mm pin pitch, DMS501B - 2.54 mm

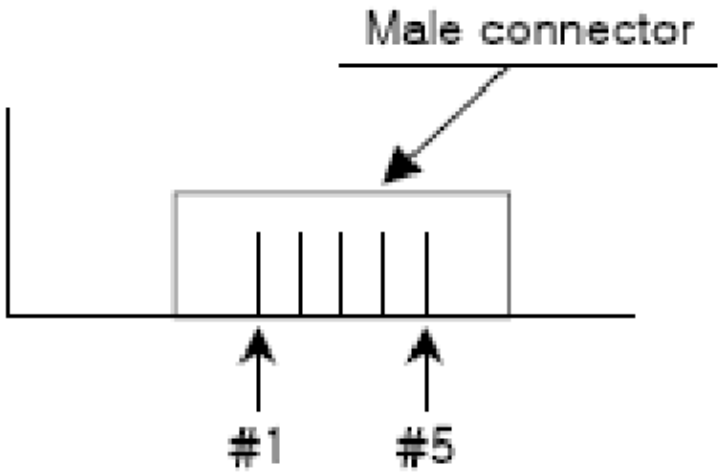
5V, 90mA

1 minute stabilization after power up

sum time of low (0.7v) for measurement interval, divide by time

PINOUT I/O DESCRIPTION

Pin number	Pin name	Description
#1	Control	Vout 1 control
#2	Vout 2	Vout 2 output factory calibrated PWM output for density of particles over 1 ï¿½m.
#3	Vcc	Positive power supply DC 5V
#4	Vout 1	Vout 1 output (PWM)
#5	GND	Ground



control pin 1

resistor between pin 1 and ground (square pin on board) to control vout 1 output (pin 4)

Resistor value	Description
open	Preset sensitivity (over 2.5 ï¿½m)
47K	Half sensitivity (over 1.75 ï¿½m)
18.2K	Equal sensitivity of Vout 2 (over 1 ï¿½m)

arduino

- Nice library, but inside repository https://github.com/richardhmm/DIYRepo/tree/master/arduino/libraries/DSM501
- interrupt driven version https://github.com/Sovichea/dsm501-interrupt/

I tried both of them and on my module they don't report sane results when compared with other sensors.

platformio

https://primalcortex.wordpress.com/2020/05/23/an-esp8266-air-quality-monitor-based-on-the-dsm501a-dust
https://github.com/fcgdam/ESP8266_AirQuality

```
dpavlin@nuc:/nuc/esp8266/ESP8266_AirQuality$ git remote -v
origin  https://github.com/fcgdam/ESP8266_AirQuality (fetch)
origin  https://github.com/fcgdam/ESP8266_AirQuality (push)

# edit config
dpavlin@nuc:/nuc/esp8266/ESP8266_AirQuality$ vi src/secrets.h

dpavlin@nuc:/nuc/esp8266/ESP8266_AirQuality$ pio run

dpavlin@nuc:/nuc/esp8266/ESP8266_AirQuality$ pio run -t upload --device-port /dev/ttyUSB2
```

Pins:

t=0xa08e9a8
cell=0xa08eb08 [0,0]cell=0xa08ec88 [0,1]

Wemos D1 +5V	DSM501a +5V
cell=0xa08edf8 [1,0]cell=0xa08ef78 [1,1] Wemos D1 D6	DSM501a PM 1.0 pin
cell=0xa08f188 [2,0]cell=0xa08f308 [2,1] Wemos D1 D5	DSM501a PM 2.5 pin<
cell=0xa08f518 [3,0]cell=0xa08f698 [3,1] Wemos D1 GND	DSM501a GND pin

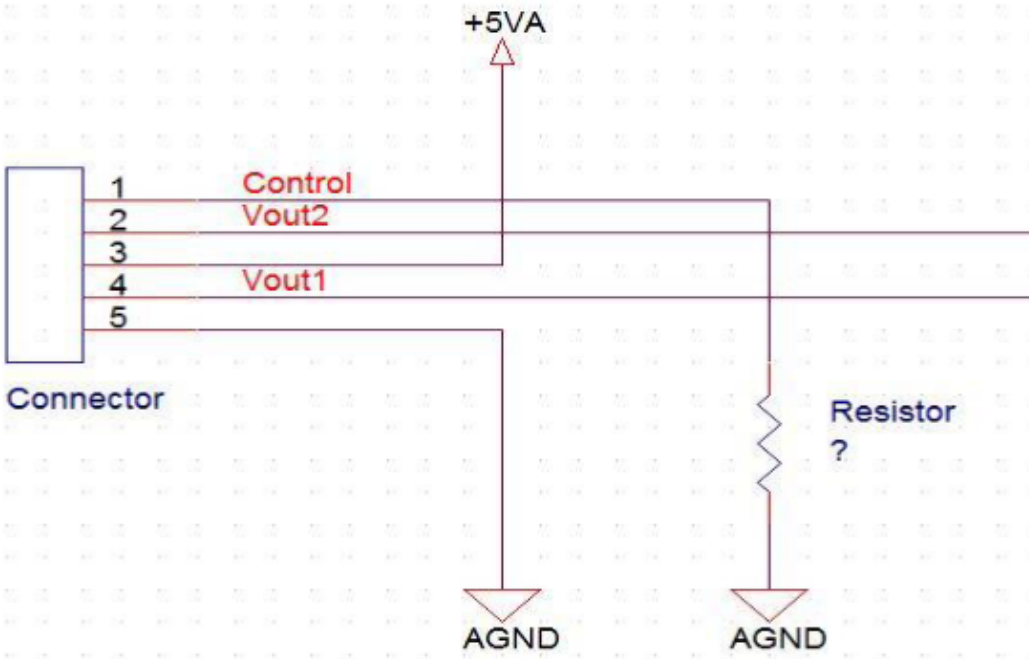
description of similar sensor

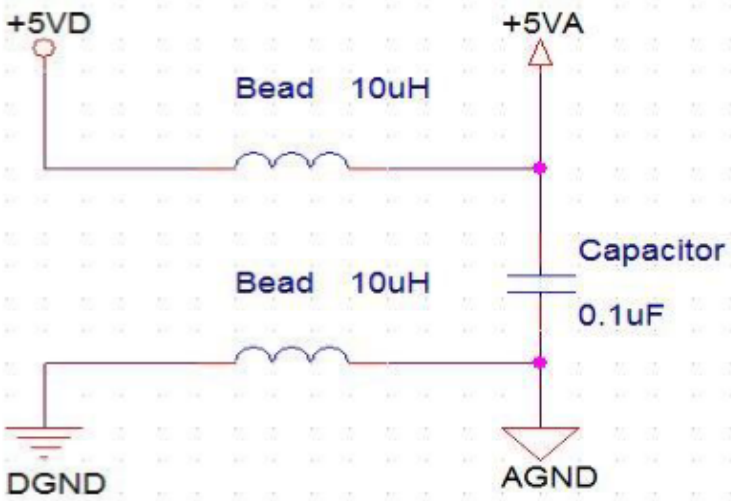
https://github.com/opendata-stuttgart/meta/blob/master/files/ShinyeiPPD42NS_Deconstruction_TracyAllen.p

power supply

It really needs quiet power supply to get any readings which are not just noise.

DSM 501


+5VA
1
2
3
4
5
Control
Vout2
Vout1
Connector
Resistor
?
AGND
AGND


+5VD
+5VA
Bead 10uH
Capacitor
Bead 10uH
0.1uF
DGND
AGND