The Novafit [SDS011](https://github.com/opendata-stuttgart/meta/blob/master/files/SDS011-V1.3.pdf) particulate sensor is an a very affordable sensor for detecting particulate pollution. It is capable of detecting both PM2.5 and PM10 with a relative error margin of +/- 10µg/m3.

It can output data via it’s serial port.

Data is sent at 9600 baud, with 8 data bits, no parity bit, and 1 stop bit. 10 bytes are sent at a time.

|  |  |  |
| --- | --- | --- |
| Byte | Name | Content |
| 0 | Message Header | AA |
| 1 | Commander No | C0 |
| 2 | DATA 1 | PM2.5 Low byte |
| 3 | DATA 2 | PM2.5 High byte |
| 4 | DATA 3 | PM10 Low byte |
| 5 | DATA 4 | PM10 High byte |
| 6 | DATA 5 | ID byte 1 |
| 7 | DATA 6 | ID byte 2 |
| 8 | Check-sum | DATA 1+DATA 2+..+DATA 6 |
| 9 | Message tail | AB |

PM2.5 (μg /m3) = ((PM2.5 High byte \*256) + PM2.5 low byte)/10  
PM10 (μg /m3) = ((PM10 high byte\*256) + PM10 low byte)/10

ESEMPIO:   
AA C0 55 7A FA FD C6 AB  
AA C0 **5D 00 74 00** FA FD C8 AB  
AA  
C0  
5D --> 93  
00 --> 0  
74 --> 115  
00 --> 0  
FA  
FD  
C8  
AB  
  
PM 2.5 --> 0\* 255 + 93 / 10 = 8.3 µg/m³  
PM 10 --> 0\* 255 + 115 / 10 = 11.5 µg/m³