

**Data Format: DisdrometerOTT Parsivel Raw**

Line 1:

MM/DD/YY OTT Parsivel (SN: SSSSSSS)

MM = two-digit month (UTC)

DD = two-digit day (UTC)

YY = two-digit year (UTC)

SSSSSS = serial number

Line 2 ... n:

Field 1: MMSSmmm

MM = minute, SS = second, and mmm = millisecond at the time the sample was acquired from the serial port (in UTC).

Field 2: RRRR.RRR

Precipitation intensity; units: millimeter per hour  
This field corresponds to No. 01 on page 29 of the OTT manual.

Field 3: AA.AA

Accumulated precipitation since last raw sample; units: millimeter  
This field corresponds to No. 02 on page 29 of the OTT manual.

Field 4: ZZ.ZZZ

Radar reflectivity factor; units: decibel  
This field corresponds to No. 07 on page 29 of the OTT manual.

Field 5: NNNNN

Number of detected particles since the last raw sample  
This field corresponds to No. 11 on page 29 of the OTT manual.

Field 6: S

Sensor status.  
0 = Sensor working correctly  
1 = Laser protective glass is dirty, but measurements are still possible.  
2 = Laser protective glass is dirty, partially covered. No further usable measurements are possible.  
3 = Laser damaged.  
This field corresponds to No. 18 on page 29 of the OTT manual.

Field 7: EEE

Error Code. 0 = no errors.  
This field corresponds to No. 25 on page 29 of the OTT manual.

Field 8 - 39: N.NNN,

N(d); units: per meter cubed millimeter  
NOTE: Missing data values are format filled with -9's.  
These fields correspond to No. 90 on page 29 of the OTT manual.

Field 40 - 71: V.VVV,

v(d); unitless  
These field correspond to No. 91 on page 29 of the OTT manual.

Field 72 - 1095: P,

Number of particles detected for each particle-diameter/velocity combination (32 x 32 matrix). The 32 particle-diameter blocks are listed from left to right for each incremental velocity class. These fields correspond to No. 93 on page 29 of the OTT manual.

For example, Velocity1-PartDiam1...Velocity1-PartDiam32  
Velocity2-PartDiam1...Velocity2-PartDiam32  
...  
Velocity32-PartDiam1...Velocity32-PartDiam32

The particle diameters and velocities are as follows:

BIN	PartDiam(mm)	BIN	Velocity(m/s)
B1	0.062	B1	0.05
B2	0.187	B2	0.15
B3	0.312	B3	0.25
B4	0.437	B4	0.35
B5	0.562	B5	0.45
B6	0.687	B6	0.55
B7	0.812	B7	0.65
B8	0.937	B8	0.75
B9	1.062	B9	0.85
B10	1.187	B10	0.95
B11	1.375	B11	1.10
B12	1.625	B12	1.30
B13	1.875	B13	1.50
B14	2.125	B14	1.70
B15	2.375	B15	1.90
B16	2.750	B16	2.20
B17	3.250	B17	2.60
B18	3.750	B18	3.00
B19	4.250	B19	3.40
B20	4.750	B20	3.80
B21	5.500	B21	4.40
B22	6.500	B22	5.80
B23	7.500	B23	6.00
B24	8.500	B24	6.80
B25	9.500	B25	7.60
B26	11.000	B26	8.80
B27	13.000	B27	10.40
B28	15.000	B28	12.00
B29	17.000	B29	13.60
B30	19.000	B30	15.20
B31	21.500	B31	17.60
B32	24.500	B32	20.80

NOTE: Raw data samples are only written to file when at least one particle is detected.  
All other missing data values are format filled with -9's.

The OTT manual can be accessed here:

<https://psl.noaa.gov/data/obs/instruments/OpticalDisdrometerV2.pdf>