

1.1. Data format

In one file, the summary information is stored in the first half and the actual data is stored in the second half.

Both are comma separated, but have different numbers of columns.

All numbers can contain decimals and should be interpreted as real numbers.

The encoding and newline characters are as follows.

- Encoding: UTF-8 with BOM
- Line feed character: CR + LF (0x0d 0x0a: Windows style)

1.1.1. Summary information

The number of columns in the summary information part is 2, forming a key-value pair.

Each version has a fixed number of lines, but a special Key marks the end of the summary section for flexibility of change.

The actual data described in the next section is compressed irreversibly for transmission, but these summary information is different from the one calculated from the actual data because it is calculated based on the values before compression.

No.	Key	Value の説明
1	ID	conanair ID = CAIR_ID [character]
2	Tag	Tag associated with ID = CAIR_TAG [character]
3	FileName	File name (measurement date and time) [character]
4	ODR	Nominal sample rate [sample/s] (all numerical values thereafter)
5	N_Samples	Number of samples (counting xyz 1 set as one)
6	Act_ms	Actual measurement time [ms] ● Actual sample rate = $N_Samples \times 1000 \div Act_ms$
7	Vdd3V3	Supply voltage during measurement[V]
8	RAccAveX	Average value of acceleration including gravity for each axis [m/s ²] ● You can see the mounting posture of the sensor in the vertical direction.
9	RAccAveY	
10	RAccAveZ	
11	RAccPkXP	
12	RAccPkXN	Peak value of acceleration including gravity on each axis [sensor read value] ● P at the end is the peak value on the plus side ● N at the end is the peak value on the negative side ● Since the minimum value that can be measured by the sensor is -4096 and the maximum value is 4094, it can be estimated that the sensor has over scaled if this value is obtained (it may not be over scaled slightly).
13	RAccPkYP	
14	RAccPkYN	
15	RAccPkZP	
16	RAccPkZN	

(Continued table)

No.	Key	Value の説明
17	HAccPkXP	Peak value of acceleration excluding gravity of each axis and 3D vector [m/s ²] <ul style="list-style-type: none"> ● A high-pass filter with $F_c = 10\text{Hz}$ is applied to remove gravitational acceleration. ● P at the end is the peak value on the plus side ● N at the end is the peak value on the negative side ● Since the 3D vector is an absolute value (magnitude), there is no negative side.
18	HAccPkXN	
19	HAccPkYP	
20	HAccPkYN	
21	HAccPkZP	
22	HAccPkZN	
23	HAccPk3D	
24	HAccRmsX	RMS value of acceleration excluding gravity of each axis and 3D vector [m/s ²] <ul style="list-style-type: none"> ● A high-pass filter with $F_c = 10\text{Hz}$ is applied to remove gravitational acceleration.
25	HAccRmsY	
26	HAccRmsZ	
27	HAccRms3D	
28	VelPkXP	Velocity peak value [mm/s] calculated from acceleration excluding gravity of each axis and 3D vector <ul style="list-style-type: none"> ● P at the end is the peak value on the plus side ● N at the end is the peak value on the negative side ● Since the 3D vector is an absolute value (magnitude), there is no negative side.
29	VelPkXN	
30	VelPkYP	
31	VelPkYN	
32	VelPkZP	
33	VelPkZN	
34	VelPk3D	
35	VelRmsX	RMS value of the velocity calculated from the acceleration excluding gravity of each axis and the 3D vector [mm/s]
36	VelRmsY	
37	VelRmsZ	
38	VelRms3D	
39	AP_RSSI	Communication strength of connected Wi-Fi access point [dBm]
40	Dev_Tmp	Temperature of the internal board [° C]
41	END_Summary	The end of the summary part. Values exist, but they don't make sense. (to align the number of columns)

1.1.2. Real data

There is no Key in each row of real data. Contains the following columns for data only.

There are no header rows, so the number of rows is equal to N_Samples in the summary information.

No.	Data ID	explanation
1	RAccX	Acceleration including gravity [m/s ²] for each axis <ul style="list-style-type: none">You can see the change in the attitude of the sensor in the vertical direction.
2	RAccY	
3	RAccZ	
4	HAccX	Acceleration excluding gravity of each axis and 3D vector [m/s ²] <ul style="list-style-type: none">Pure vibration component that is not affected by posture changesA high-pass filter with FCc= 10Hz is applied to remove gravitational acceleration.
5	HAccY	
6	HAccZ	
7	HAcc3D	
8	VelX	Velocity calculated from acceleration excluding gravity oneach axis and 3D vector[mm/s]
9	VelY	
10	VelZ	
11	Vel3D	

Revision history

2021-3-18 0.0.4 → 2.0.0

1.1.1 Added 2 items to the summary information by upgrading to V2.
Added (AP_RSSI, Dev_Tmp).

2021-10-18 2.0.0 → 2.0.1

Paragraph alignment correction