conbee SmartTAG payload depend on sensor configuration but follow a common structure.

Payload Description

Depending on hardware and software configuration, the payload of conbee SmartTAG devices is variable but follow a structure, which is common among all devices and is independant of the underlying wireless technology.

General Structure

The general structure of the payload is shown in the table below. The payload is composed of "packets" of sensor specific data. Each packet starts with one byte for the length of the packet, one byte for a Service No/ID, one byte for the Characteristic of that service and several bytes of data. The table shows two packets.

Length of service data (1)	Service (1)	Characteristic (1)	Data (1)	Length of service data (2)	Service (2)	Characteristic (2)	Data (2)
1 Byte	1Byte	1 Byte	0-X Byte/s	1 Byte	1Byte	1 Byte	0-X Byte/s

The Service No/ID identifies the corresponding sensor and sensor can be componsed of one or more characteristics. A temperature sensor has only one characteristic, while an accelerometer is composed of one characteristic per axis (x,y,z axis).

Services and Characteristics List

Currently available services and characteristics are shown in the table below. Depending on the hardware (assembly variants) as well as the device firmware, the actually available services on a particular device may vary. Future devices may provide additional services and characteristics, which will be added to this document continously.

Service Nr.	Service Name	Characteristics Nr.	Characteristics Name	Data Type	Additional Information
0x01	Ambient Light Sensor				
		0x01	Ambient Light Sensor Value	2 bytes (uint16)	Unit: LUX
0x02	Temperature Sensor				
		0x01	Temperature	4 bytes (float)	Unit: °C
		0x04	Temperature (shorted)	2 bytes (sint16)	Unit: (x/100)°C
0x03	Humidity Sensor				
		0x01	Humidity Sensor Value	1 bytes (uint8)	Unit: (%)
0x04	Accelerometer				
		0x01	Accelerometer Value X axis	2 bytes (sint16)	Unit: millig
		0x02	Accelerometer Value Y axis	2 bytes (sint16)	Unit: millig
		0x03	Accelerometer Value Z axis	2 bytes (sint16)	Unit: millig
0x05	Push Button				
		0x01	Push Button 1 Value	1 bytes (uint8)	Pushed = 0x01, Released = 0x00
		0x02	Push Button 2 Value	1 bytes (uint8)	Pushed = 0x01, Released = 0x00
0x0b	Proximity Sensor				
		0x01	Proximity Sensor Value	2 bytes (uint16)	Unit: millimeters
		0x06	Proximity in %	1 bytes (uint8)	Unit: (%)
0x0f	Tracking				
		0x01	Localisation-ID	2 bytes (uint16)	Unit: Integer ID
0x11	Operating hours				
		0x01	Operating hours value (Ticks)	2 bytes (uint16)	Unit: Ticks
		0x02	Operating hours value (hours)	2 bytes (uint16)	Unit: Hours
0x12	Indoor-Localisation				
		0x02	Mac/Serial. , Loc-Information	Variable	Refer to conbee_indoor_loc.pdf
0x50	GPS				
		0x01	Declatitude	4 bytes (int32)	X/1000000
		0x02	Declongitude	4 bytes (int32)	X/1000000
0x51	Battery				
		0x01	Battery Voltage	1 bytes (uint8)	Unit: X/10 V
		0x02	Battery Indicator	1 bytes (uint8)	0x01 = FRESH, 0x02 = FIT, 0x03 = USABLE, 0x04 = REPLACE
0x2A	Bluetooth SIG				
		0x25	Serial Number	6 bytes (HEX)	Hexadecimal string

Example Payload

The payload of the current "standard" HybridTAG L500 is described here.

Payload String

04-01-01-09-C0-06-02-01-41-c4-00-00-04-04-01-00-35-04-04-02-00-00-04-04-03-04-00-03-05-01-01-04-0b-01-01-F4-06-50-01-02-ff-ac-48-06-50-02-00-82-bb-92-03-51-01-2D-08-2A-25-01-02-A2-BD-AA-11

Payload Content

Sensor/ Value Name	Ambient Light	Temperature	Accl. X-Axis	Accl. Y-Axis	Accl. Z-Axis	Push Button 1	Proximity	GPS-Declatitude	GPS-Declongitude	Battery Voltage	Serial Number
HEX- Payload	04-01-01-09-C0	06-02-01-41-c4-00-00	04-04-01-00-35	04-04-02-00-00	04-04-03-04-00	03-05-01-01	04-0b-01-01-F4	06-50-01-02-ff-ac-48	06-50-02-00-82-bb-92	03-51-01-2D	08-2A-25-01-02-A2-BD-AA-11
Parsed Data	2496 LUX	24.5 °C	53 millig	0 millig	1024 millig	Button pressed	500 millimeters	50.310216	8.567698	45/10 = 4,5 V	01-02-A2-BD-AA-11
Bytes/ Length	5	7	5	5	5	4	5	7	7	4	9

DISCLAIMER