Elsys sensors payload

All Elsys LoRa sensor devices use the same payload structure.

1   Elsys payload

1.1   Sensordata payload

One transmission can contain several sensor measurements.

Sensor data	Sensor data	....	Sensor data

1.2   Sensor data

Size:	1	1-n	0-4
Sensor data:	Type	Data	[OFFS]

1.2.1   Sensor Type

Type of sensor and no of offset bytes

Bit:	2	6
Type bits:	NOB	STYPE

1.2.1.1   NOB (Number of offset bytes)

Bit 7	Bit 6	Name
0	0	0 Offset bytes
0	1	1 Offset byte
1	0	2 Offset bytes
1	1	4 Offset bytes

1.2.1.2   Stype

Bit 5..0	Type	Data size	Comment
0	Reserved		
1	Temperature	2	-3276.8°C -->3276.7°C
2	Humidity	1	0-100%
3	Acceleration/level	3	X,Y,Z -128 --> 127 (-2->+1,98G)
4	Light	2	0-->65535
5	Motion	1	0,>1
6	CO2	2	0-65535ppm
7	Battery	2	0-65535mV
8	Analog1	2	0-65535
9	GPS	6	3bytes lat,3bytes long,binary
10-63	Reserved		

1.2.2   Data
Sensor value

1.2.3   Offset
Number of second's since data was sampled

1.3   Example

1.3.1   Temperature

1.3.1.1   *Temperature 20.5C*
```
"0x01,0x00CD" Payload 3 bytes
```

1.3.1.2   *Temperature 20.5C 10 sec ago*
```
"0x41,0x00CD,0x0A" Payload 4 bytes
```

1.3.1.3   *Temperature 20.5C 24 hours ago*
```
"0xC1,0x00CD,0x00015180" Payload 7 bytes
```

1.3.1.4   *Temperature 20.5C,26.8C 10 sec ago*
```
"0x01,0x00CD,0x41,0x010C,0x0A" Payload 7 bytes
```

2   RAW payload
All sensor data are sent without header and offset and only the latest value are sent.

2.1   Sensordata payload
One transmission can contain several sensor measurements.

Sensor data	Sensor data	….	Sensor data

2.2   Sensor data

Size:	1-n
Sensor data:	Data

2.2.1 Sensor data size

Type	Data size	Comment
Temperature	2	-3276.8°C -->3276.7°C
Humidity	1	0-100%
Acceleration/level	3	X,Y,Z -128 --> 127
Light	2	0-->65535
Motion	1	0,>1
CO2	2	0-65535ppm
Battery	2	0-65535mV
Analog1	2	0-65535
GPS	6	3bytes lat,3bytes long,binary

2.2.2 Sensor data order

Sensor data are always sent in the same order. If the sensor type is inactivated the data is removed and remaining data is shifted to the left.

sensor 1	sensor 2	sensor 3	sensor 4
Temperature	Humidity	Acceleration	Battery

2.3 Example

2.3.1 Temperature

2.3.1.1 Temperature 20.5C
"0x00CD" Payload 2 bytes

2.3.1.2 Temperature 20.5C ,Humidity 30%
"0x00CD,0x1E" Payload 3 bytes

2.3.1.3 Temperature 20.5C, Humidity 30%, Acceleration XYZ, Battery 3.61V
"0x00CD,0x1E,0x80,0x60,0x30,0x0E1A" Payload 8 bytes

2.3.1.4 Humidity 30%
"0x1E" Payload 1 byte

2.3.1.5 Humidity 30%, Battery 3.61V
"0x1E,0x0E1A" Payload 3 bytes