NYX PAYLOAD DESCRIPTION

This chapter describes the structure of the telemetry data. The number of bytes in the payload depends on the configuration of the sensor. The structure of the data depends on which sensors are present in your product. In principle, each version has a header. This has information about the version and status of the sensor and also contains a master measured value. This measured value can simply be assumed to be the current measured value. The header is followed by an additional payload part that contains further information, such as special parameters for the measuring principle or settings for position and opening detection. Not every sensor has an additional payload part.

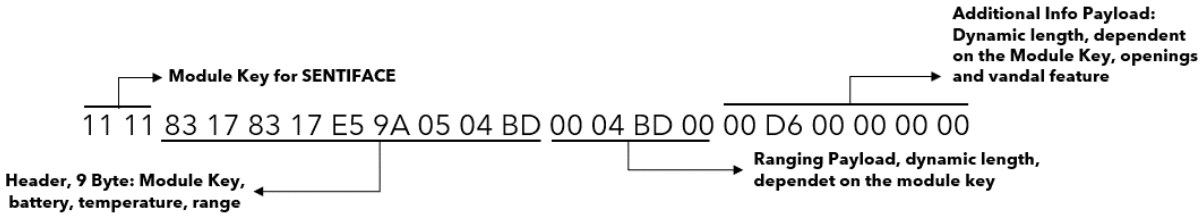
Terms	Description
Byte No.	Byte number starting at 1
Alias	Comprehensible name of the variable
Description	Description of the variables
Designation	Designation in the Dataconverter
Unit	Unit of the variables
Datahub .json key	Key in the .json when using the data hub

STRUCTURE OF THE MODULE KEY

Byte 1		Byte 2	
Bit 7 – 4	Bit 3 – 0	Bit 7 – 4	Bit 3 – 0
Base ID Modul e.g. Sentiface, Senticom, Sentivisor	Major Version (SW/HW version)	Minor Version (SW/HW version)	Product version (sensors, e.g. TH, THL, ACC, ...)

The module key of the SENTIFACE module can be taken from the first 2 bytes of each uplink. The module key is required for the downlink.

UPLINK EXAMPLE (NOT APPLICABLE FOR NYX)



Gegeben ist das folgende Payload Beispiel für den Helios Drucksensor:

```
11 11 FE 1A D5 95 06 03 00 23 BE
```

Bytes	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
HEX	11	11	FE	1A	D5	95	06	03	00	23	BE
Description	Module key	Module key	Uplink Counter	Battery Voltage	Battery Voltage	Temperature	Alarm Flag	Alarm Flag	Measurement status	Pressure mbar	Pressure mbar

NYX PAYLOAD DESCRIPTION

Byte number	Alias name	Description	Unit	Designation in the payload decoder	Module key	Datahub .json key
1 – 2	Module key	Byte 1: • 4-bit MSB: Module code. For Mioty exclusively "Sentiface" telemetry module, i.e. always 0x1. • 4 bit LSB: Major version. FW of the same major version but larger minor version remain compatible with older decoders. However, the number of bytes may change! Byte 2: • 4 bit MSB: Minor version. New SW versions may incrementally add new telemetry to the data packet. • 4 Bit LSB: Sub / Product Version. With Helios, these bits encode the specific configuration of connected sensors.		module_key	XXX1	module_key
3	Uplink counter	Uplink counter: Protocol-independent uplink counter that reaches a maximum of 255. After that, the counter starts again at 0.		uplink_counter	XXX1	uplink_counter
4 – 5	Battery voltage	Current voltage of the battery in millivolts //Voltage in volts battery_voltage: (dataBytes[3] << 8 | dataBytes[4])/1000.0	mV	battery_voltage	XXX1	battery_voltage
6 – 7	Internal temperature	Temperature of the sensor: Internal_temperature = ((bytes[5] << 8) | bytes[6]) / 10 - 100; This value is the temperature value for this sensor, according to the specification in the technical data sheet	°C	internal_ temperature	XXX1	internal_ temperature
8	Relative humidity	Relative humidity in %RH	%RH	humidity	XXX1	humidity

Byte number	Alias name	Description	Unit	Designation in the payload decoder	Module key	Datahub .json key
9 – 10	Dew point	Dew point in °C	°C	dew_point	XXX1	dew_poin
11	Alarm variable	Alarm level, corresponds to green, yellow and red display on the LEDs		alarm-level	XXX1	alarm-leve
12 – 13	Light intensity indicator	Light intensity in lux as an indicator, no direct measurement of ambient light For decoding: decoded.lux= (1 << (raw_lux >> 12)) * (raw_lux & 0x0FFF) * 0.01;	lux	raw_lux	XXX1	raw_lux
14	Gas sensor stature	Jamming of the gas sensor:	°C	internal_ temperature	XXX4	internal_ temperature
15 – 16	Air pressure	Air pressure in	%RH	pressure	XXX4	pressure
17	Indoor Air Quality Status	Indoor Air Quality Status		iaq_status	XXX4	iaq_status
18 – 19	Indoor Air Quality Index	Indoor Air Quality Index		Iaq_index	XXX4	Iaq_index

IAQ INDEX

The **IAQ index** (Indoor Air Quality Index) is an indicator that assesses the quality of indoor air and is often used to describe the health status of indoor air. It is typically calculated on the basis of measurements of various air pollutants.

OBJECTIVE OF THE IAQ-INDEX

- **Health protection**: The IAQ index indicates how safe or healthy the air is for the people in the room.
- **Orientation aid**: It enables a simple and comprehensible interpretation of the air quality, often in the form of a scale value or a color classification.

IMPORTANT PARAMETERS FOR THE IAQ-INDEX

The IAQ index is based on various factors and measurements, including:

1. **carbon dioxide (CO_2):**
   - High concentrations can cause fatigue, concentration problems and discomfort.
   - Typical limit: 400-1000 ppm (parts per million) is considered acceptable.
2. **volatile organic compounds (VOC):**
   - Chemical substances released from paints, cleaning products, furniture or electronic equipment.
   - At high concentrations, VOCs can cause headaches, irritation or long-term health problems.
3. **particulate matter (PM2.5/PM10):**
   - Fine particles created by smoke, cooking fumes or dust.
   - Particulate matter can cause respiratory illnesses and other health problems.

4. **carbon monoxide (CO):**

- A toxic gas produced by incomplete combustion.
- Even low concentrations can be dangerous.

5. **relative humidity and temperature:**

- These values affect well-being and the growth of mold or bacteria.

CLASSIFICATION OF THE IAQ-INDEX

Many IAQ systems use a numerical or color scale to represent air quality. For example:

IAQ-VALUE	Air quality	Description
0–50	Excellent	No health risks.
51–100	Good	Low risks for sensitive persons.
101–150	Moderate	May be problematic for sensitive individuals.
151–200	Unhealthy	Possible adverse effects for the general population.
201–300	Very unhealthy	Health problems with prolonged exposure.
301+	Dangerous	Serious health risks.

EXAMPLES DECODING

Payload: 11 11 A2 0D 29 09 38 2B 04 06 00 03 A0

Bytes	1	2	3	4	5	6	7	8	9	10	11
HEX	11	11	A2	0D	29	09	38	2B	04	06	00
Description	Module key	Module key	Uplink Counter	Battery voltage	Battery voltage	Temperature	Temperature	Rel. humidity	Dew point	Dew point	Alarm Flag

Bytes	12	13
HEX	03	A0
Description	Light intensity	Light intensity


```
"f_port": 1,
"f_cnt": 161,
"frm_payload": "ERGiDSkE1CsETwADoA==",
"decoded_payload": {
  "alarm_level": 0,
  "base_id": 1,
  "battery_voltage": 3.369,
  "dew_point": 10.299999999999997,
  "humidity": 43,
  "internal_temperature": 23.599999999999994,
  "lux": 9.28,
  "major_version": 1,
  "minor_version": 1,
  "networkBaseType": "lorawan",
  "networkSubType": "tti",
  "product_version": 1,
  "up_cnt": 162
},
```