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Technical Document

Payload

2019

Flowmeter description

- The flowmeter can have up to 4 sensors, as shown in the figure below
- It sends regularly a payload that is described in the next slide

Keep-alive Frame

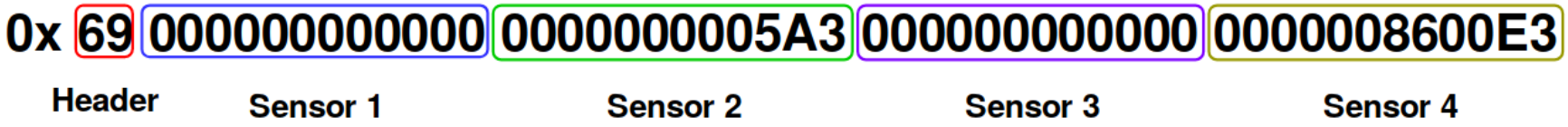
	#Bytes	offset	Size (bits)	Designation	Possible values
	Bytes 0	0	2	Command Code	0b01 : Volume after Keep-alive
		2	4	Sensor Number	0b0000 : Keep-alive 0b0001 : sensor 1* 0b0010 : sensor 2* 0b0100 : sensor 3* 0b1000 : sensor 4*
		6	2	Battery Level	0b00 : Out of Order Battery 0b01 : low level battery 0b10 : medium level battery 0b11 : full level battery
Sensor 1	Bytes 1 to 6	8	48	Number of Ticks	0x00..0xFFFFFFFFFFFF
Sensor 2	Bytes 7 to 12	56	48	Number of Ticks	0x00..0xFFFFFFFFFFFF
Sensor 3	Bytes 13 to 18	104	48	Number of Ticks	0x00..0xFFFFFFFFFFFF
Sensor 4	Bytes 19 to 24	152	48	Number of Ticks	0x00..0xFFFFFFFFFFFF

* - possible to put several sensors via bitmask

Keep-alive Frame

Example

- Frame received :



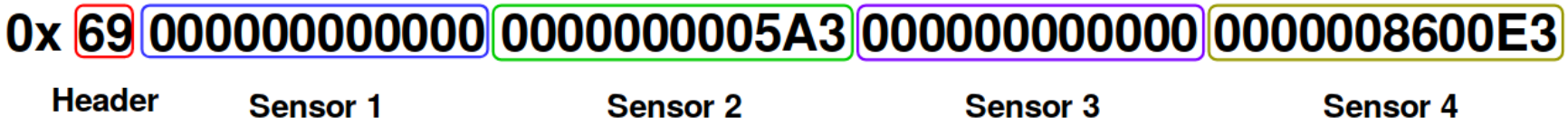
We can decode this frame as the following:

- Header: 0x69 equals to 01.1010.01, that translates to
  - 01 : Low battery
  - 1010 : Sensors 2 and 4
  - 01 : Indicates that this message transmits sensor data

Keep-alive Frame

Example

- Frame received :



- Sensors:
  - Sensor 1: 0x000000000000 = 0 ticks
  - Sensor 2: 0x0000000005A3 = 1443 ticks
  - Sensor 3: 0x000000000000 = 0 ticks
  - Sensor 4: 0x0000008600E3 = 8782051 ticks

Conversion to liters

- Each sensor sends its data in ticks, the conversion to volume can be done as the following:

Volume = ticks / ticks per liter

- The number of ticks per liter depends on the type of sensor as the following table

Sensor type	Ticks per liter
DN20	1000
DN25	336.89

Conversion to liters

Example:

- Considering the DN20

Sensor 2: 1443 ticks = 1.443L

Sensor 4: 8782051 ticks = 8782.051 L

- Considering the DN25

Sensor 2: 1443 ticks = 4.283 L

Sensor 4: 8782051 ticks = 26068,007 L