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Single sensor 3.0

Payload description for LORA and NBIoT
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Single sensor V3 payload description for LORA, NBIoT

TX data structure					
Offset	**Name**	**Type**	**Note**	**Size in B**	**Description**
0	head	sens_tx_head_t	2B, 4b , 4b, 8b	4	0xFF; 0xFF; 4b = 2 (SS); 4b = 0 - Master, 1 - slave, 2 - standalone; 8b = FW version
4	c_id	uint32_t	Sensor ID (little endian)	4	Convert from little endian to big endian
8	events	uint8_t	Events (see table below)	1	see Events table below
9	sonar0	uint8_t	value * 2 = distance [cm]	1	hex to decimal * 2 = measured distance in cm
10	sonar1	uint8_t	value * 2 = distance [cm]	1	hex to decimal * 2 = measured distance in cm
11	sonar2	uint8_t	value * 2 = distance [cm]	1	hex to decimal * 2 = measured distance in cm
12	sonar3	uint8_t	value * 2 = distance [cm]	1	hex to decimal * 2 = measured distance in cm
13	voltage	uint8_t	2500 + value * 10 = voltage [mV]	1	2500 + (value from hex to decimal * 10) = voltage in mV
14	temperature	uint8_t	temperature [°C]	1	hex to decimal is temperature in degrees of celsius
15	tilt	uint8_t	sensor tilt [°]	1	hex to decimal (not used in single sensor FW)
16	tx_event	uint8_t	Event count	1	Number of events

Events		
HEX	**Event**	**Description**
0x01	SENS_EVENT_MEASURE	Measurement ended
0x02	SENS_EVENT_FIRE	Temperature threshold
0x04	SENS_EVENT_TILT	Tilt threshold
0x08	SENS_EVENT_SLAVE	Slave device TX
0x10	SENS_EVENT_LOWBAT	Battery Low
0x20	SENS_EVENT_GPSFIX	GPS fix done
0x40	SENS_EVENT_STARTUP	After startup or reboot

PAYLOAD example	
ffff22b262d09070010505050570 1b0075	
ffff	header
22b2	2 = **SS** ; 2 = **standalone** ; b2 = **178**
62d09070	62 d0 90 70 ----> **7090d062**
01	01 from Events table = measurement ended
05	05 (hex) = 05 (dec) ; 05 * 2 = **10 cm**
05	05 (hex) = 05 (dec) ; 05 * 2 = **10 cm**
05	05 (hex) = 05 (dec) ; 05 * 2 = **10 cm**
05	05 (hex) = 05 (dec) ; 05 * 2 = **10 cm**
70	70 (hex) = 112 (dec) ; 2500 + (112 * 10) = **3620 mV**
1b	1b (hex) = 27 (dec) ; temperature = **27°C**
00	hex to decimal (not used in single sensor FW)
75	Event count

Single sensor V3 SHORT payload description for LORA - FW 188DR3 and higher AS923 DR2 and US915 DR0

TX data structure					
Offset	**Name**	**Type**	**Note**	**Size in B**	**Description**
0	head	sens_tx_head_t	2B	2	0xFF; 0xFE
2	events	uint8_t	Events (see table below)	1	see Events table below
3	sonar0	uint8_t	value * 2 = distance [cm]	1	hex to decimal * 2 = measured distance in cm
4	sonar1	uint8_t	value * 2 = distance [cm]	1	hex to decimal * 2 = measured distance in cm
5	sonar2	uint8_t	value * 2 = distance [cm]	1	hex to decimal * 2 = measured distance in cm
6	sonar3	uint8_t	value * 2 = distance [cm]	1	hex to decimal * 2 = measured distance in cm
7	voltage	uint8_t	2500 + value * 10 = voltage [mV]	1	2500 + (value from hex to decimal * 10) = voltage in mV
8	tx_event	uint8_t	Event count	1	Number of events

Events		
HEX	**Event**	**Description**
0x01	SENS_EVENT_MEASURE	Measurement ended
0x02	SENS_EVENT_FIRE	Temperature threshold
0x04	SENS_EVENT_TILT	Tilt threshold
0x08	SENS_EVENT_SLAVE	Slave device TX
0x10	SENS_EVENT_LOWBAT	Battery Low
0x20	SENS_EVENT_GPSFIX	GPS fix done
0x40	SENS_EVENT_STARTUP	After startup or reboot

PAYLOAD example	
feff01050505057075	
feff	header feff ----> **ff fe**
01	01 from Events table = measurement ended
05	05 (hex) = 05 (dec) ; 05 * 2 = **10 cm**
05	05 (hex) = 05 (dec) ; 05 * 2 = **10 cm**
05	05 (hex) = 05 (dec) ; 05 * 2 = **10 cm**
05	05 (hex) = 05 (dec) ; 05 * 2 = **10 cm**
70	70 (hex) = 112 (dec) ; 2500 + (112 * 10) = **3620 mV**
75	Event count

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