

ED210

LoRaWAN Smart Badges Payload

Document Revision Record

Version	Time	Description	Remark
V1.0.0	2020-05-11	Preliminary version	Ming

Introduction

The goal of this document is to detail the messages sent between ED210 sensor and a LoRa Network server.

1. Sensor -To- Server Message

1.1 GPS Positioning information data frame (UNCONFIRMED)

Content	Data type	Unit	Remark
Msg type	Uint8_t		GPS positioning information data frame function code is 0x01
UTC	Uint32_t	s	Universal Time Coordinated, world standard time, such as: 1505285997(0x59B8D76D). The corresponding Beijing time is 2017/9/13 14:59:57.
latitude	Uint32_t	degree e*100 000	The latitude value obtained by GPS is in ddd° mm.mmm' format , need to convert into ddd.ddddd ° format , the hexadecimal obtained by multiplying 1000000 represents the protocol latitude value. eg: ddd° mm.mmm' format 2235.10896 convert into ddd.ddddd ° format is 22.585149. 22.585149*1000000=22585149 , Convert to hexadecimal is 0x1589F3D
longitude	Uint32_t	degree e*100 000	The longitude value obtained by GPS is in ddd° mm.mmm' format , need to convert into ddd.ddddd ° format , the hexadecimal obtained by multiplying 1000000 represents the protocol longitude value. eg: ddd° mm.mmm' format 11354.79188 convert into ddd.ddddd ° format is 113.913198 , 113.913198*1000000=113913198 , Convert to hexadecimal is 0x6CA2D6E
Speed	Uint16_t	Km/h	Speed measured by GPS, express in one byte, range 0---255;
Battery	Uint8_t	%	Battery percentage

1.2 Indoor positioning data frame (UNCONFIRMED)

Content	Data type	Unit	Remark
Msg type	Uint8_t		The indoor positioning data frame function code is 0x02
UTC	Uint32_t		Universal Time Coordinated, world standard time, such as: 1505285997(0x59B8D76D). The corresponding Beijing time is 2017/9/13 14:59:57.

Number of Beacons	Uin8_t		The number of beacons with the best signal received in the surrounding area, up to 5.
Beacon ID	Uin24_t		Different beacons have different IDs (3 bytes in total, with 1 byte for Major and 2 bytes for Minor)
Distance	Uin16_t	0.1m	The distance from the receiver to the beacon. For example: 0x000a represents 1.0m.
...			
Beacon ID	Uin24_t		
Distance	Uin16_t	0.1m	
Battery	Uin8_t	%	Battery percentage

1.3 Alarm data frame (CONFIRMED)

Content	Data type	Unit	Remark
Msg type	Uin8_t		The alarm data frame function code is 0x03
Low power alert	Uin8_t		00: non- low battery 01: Low battery
Charging alarm	Uin8_t		00: non-charging 01: charging

Response : ACK

2. Serve-To-Sensor message

2.1. Set GPS reporting interval and Bluetooth reporting interval

Downlink: 0x01 0x01 0x1b 0x00 0x10

(0x01 is the function code, the first two bytes that follow are the GPS reporting interval, and the last two bytes are the Bluetooth reporting interval. The range is 5~65535 seconds, for example, 0x01 0x1b means the reporting interval is 283 seconds; 0x00 (0x10 indicates that the Bluetooth reporting interval is 16 seconds)

2.2 Turn GPS reporting off and on

Downlink : 0x02 0x01 Turn on the GPS periodic reporting
0x02 0x00 Turn off the GPS periodic reporting

2.3 Turn Bluetooth report off and on

Downlink: 0x03 0x01 Turn on the Bluetooth periodic reporting
0x03 0x00 Turn off the Bluetooth periodic reporting