

Device Limitations

- TTN Restrictions

Due to The Things Network (TTN) restrictions, each device can only spend a certain amount of time sending data to the gateway (about 30 seconds). Due to the spreading factor that is being used for the device, the sending times will vary from device to device. We expect that any device that is using a higher spreading factor will have a lower limit for sending measurements through TTN, due to it taking more time to send each measurement.

- Only 30 seconds of connection time per device, per day.
- Higher spreading factor on the device means more time spent sending each measurement.

Implication

Devices that are further away, or in more congested areas (e.g. surrounded by many large buildings and uneven ground) will have a lower limit for messages sent per day.

This means that the delay period will need to fit within these limits, and adjusted accordingly based on each device.

- Device is outside in varying weather conditions (Battery performance)

Due to winter weather conditions in the UK usually being very cold, the battery performance is expected to worsen during colder weather. However, it is also likely to worsen in more extreme hot weather (more than 20 degrees celsius) during peak of summer.

- Winter is likely to reduce battery performance
- Very hot weather can also reduce performance (> 20 degrees celsius)

- SD card size limits

- If SD card is full, logging will stop
 - This should be very unlikely, as we expect any modern SD card to usually be upwards of 4GB to store text files. So this should be very rare if the sensor is maintained properly (engineer will check logs and delete when needed).