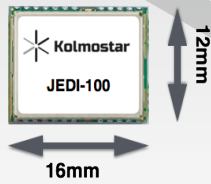


JEDI-100

Kolmostar Ultra Low Power GNSS Module



Highlights

Ultra Low Power Consumption

- 20mW power consumption @1 Hz navigation rate (measured in real environments)

Fast time to fix

- 2 seconds TTFF (time to first fix)

Enable A-GPS via LoRaWAN®/NBloT with minimal file upload/download

- 100 Byte customized ephemeris file

Accurate position fix

- 5.0m CEP

Product Description

JEDI-100 is Kolmostar’s ultra-low-power GNSS module. Built on the superior performance of the Kolmo JEDI engine, it integrates SAW filter, stand-alone LNA, and TCXO.

Designed for IoT applications, especially for integration with LoRaWAN®/NBloT, JEDI-100 not only achieves industry record low power consumption, but also enables AGPS through LoRaWAN®/NBloT. Compared with traditional GNSS sensors, JEDI-100 reduces the energy to get one position fix by up to 65x.

Application Example

GPS+LoRaWAN®/NBloT position tracker. Use GPS to get position, use LoRaWAN®/NBloT to transmit data. Position needs to be updated every two hours.

Challenges:

A-GPS is widely used to provide ephemeris to GPS sensors in phones. However, ephemeris file can be as big as 15KB, which is too big for LoRaWAN®/NBloT.

In practice, traditional GPS sensors in LoRaWAN®/

Features

Receiver Type	GPS L1
Nav. Update Rate	1 Hz
Position Accuracy	5.0m CEP
TTFF (Aided Start)	2 s

Package and Interface

Package	24pin 12.0 x 16.0 x 2.5mm
Interface	1 UART

Quality and Reliability

Storage Temp.	-40 °C to +85 °C
Operating Temp.	-40 °C to +85 °C

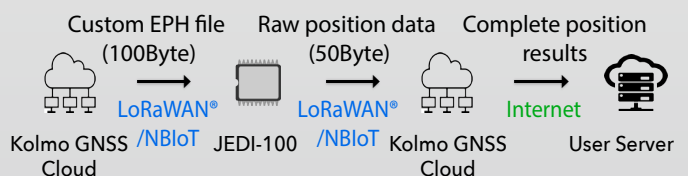
Electrical Data

Supply Voltage	2.8V
Power Consumption	Acquisition: 25mW Tracking: 20mW

NBloT devices download ephemeris directly from GNSS satellites. This process takes more than 30 seconds and costs lots of energy.

Our Solution

Our solution reduces ephemeris (EPH) file from 15KB to 100Byte and enables A-GPS via LoRaWAN®/NBloT:



JEDI-100 consumes 20mW every second and TTFF is 2 seconds with A-GPS. In comparison, traditional GPS consumes more than 100mW every second and TTFF is more than 30 seconds if ephemeris needs to be downloaded.

Our solution reduces the energy of GPS to get one position by 65x.