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Thuraya T2M-DUAL

Mobility. Versatility. Reliability. Efficiency





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Our current pace of development requires the constant support of ever-evolving technology. As industries and organizations extend the potential of existing markets and tap into new ones, the need to collect and manage data seamlessly becomes more urgent.

Tracking and monitoring assets, fixed or mobile, located across changing points, has traditionally been a complex process. However, as operations delve further into remote territories, it is increasingly vital to rely on solutions that are simpler, flexible, more affordable and less labor-intensive.

The Thuraya T2M-DUAL terminal (Thuraya Tracking and Monitoring) addresses these challenges by enabling IoT and M2M use cases. The dual mode terminal allows smarter, more streamlined and automated data capture over both Satellite and GSM networks by offering diverse modes of communication:

1. Fleet Management mode
2. Logger mode
3. Modem mode

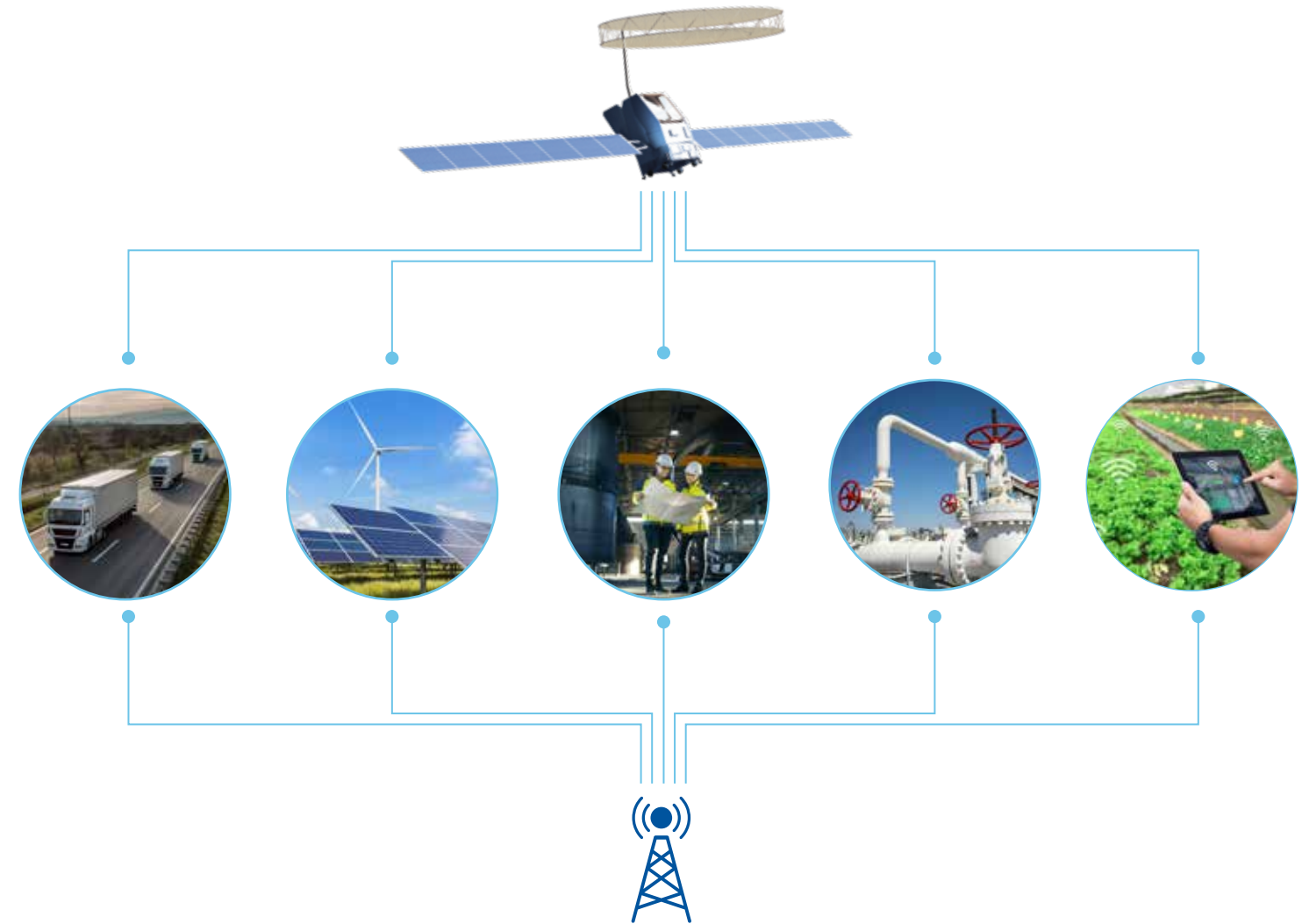
The Thuraya T2M-DUAL's automated network mode selection is regulated by least cost routing, which ensures unrivalled total cost of ownership. T2M-DUAL facilitates actionable data delivery right to the operator or manager, thereby improving asset performance and process efficiency. The terminal is designed to withstand harsh environmental conditions, vibration and shock.

Quick, Extensive and Resilient Tracking

Thuraya T2M-DUAL is the world's only Satellite - GSM solution that allows Satellite Messaging, GmPRS IP Data and Circuit Switched 9.6 kbps data to enable simultaneous collection of data from multiple points and sources including location information, data from external sensors and peripheral devices and input collected from vehicle or heavy equipment CANbus. The terminal's robust system and interoperability render it a top-class solution for wide-scale, often mobile operations in sectors like transportation, government, energy and utilities, agriculture, hydro environment and mining.

Dual Use – Track Fixed or Mobile Assets

- **Dual-mode coverage:** Dual-mode auto-switching between Thuraya's satellite M2M network and partner GSM networks allows for seamless, always-on coverage
- **Choice of transmission:** Unmatched choice of transmission to meet any use case communicate over 3G GSM or Satellite: Messaging, GmPRS IP Data, Circuit Switched 9.6 kbps data
- **Mobile fleet tracking:** Track and manage vehicles and assets across borders, to ensure remote asset safety and efficiency
- **Operational efficiency:** With the ability to gauge and continually monitor events, T2M-DUAL helps operators make smarter decisions to drive operational efficiency
- **Low total cost of ownership:** Cost effective data plans with a data pooling option, giving peace of mind with predictable costs



System Advantages



→ **Location:** Know the exact location of all your assets with built-in navigation systems supporting: GPS, Galileo, Glonass and Beidou navigation systems.

→ **Communication modes:** 7 modes of communication

- 1 SAT Only Messaging mode
- 2 SAT Only Packet Preferred mode
- 3 GSM Only mode (Packet only)
- 4 SAT Preferred mode (SAT Packet - SAT SMS - GSM Packet)
- 5 GSM Preferred mode (GSM Packet - SAT Packet - SAT SMS)
- 6 GSM Preferred mode 2 (GSM Packet - SAT SMS)
- 7 SAT only CSD mode

→ **OTA:** Over-the-air command and control SDK and Protocol support

→ **Onboard memory:** To enable RTUs to use T2M as Master and Dump data into its memory

→ **Automation:** Configure data collection and transmission using T2M configurator tool

→ **Sensor data:** Integrate sensors to enable real-time condition monitoring of assets including temperature, pressure, humidity, vibration and wear

→ **Dispatch/Receive:** Automate the receiving and dispatching of assets through peripheral devices and screens

→ **Usage history:** Track the usage history of assets, including movement and engine hours

→ **Maintenance:** Ensure assets are routinely inspected, maintained and data is readily available

→ **Network selection:** Choice of GSM and Satellite networks based on 7 different communication modes



Communication Modes

3 independent modes of operation:

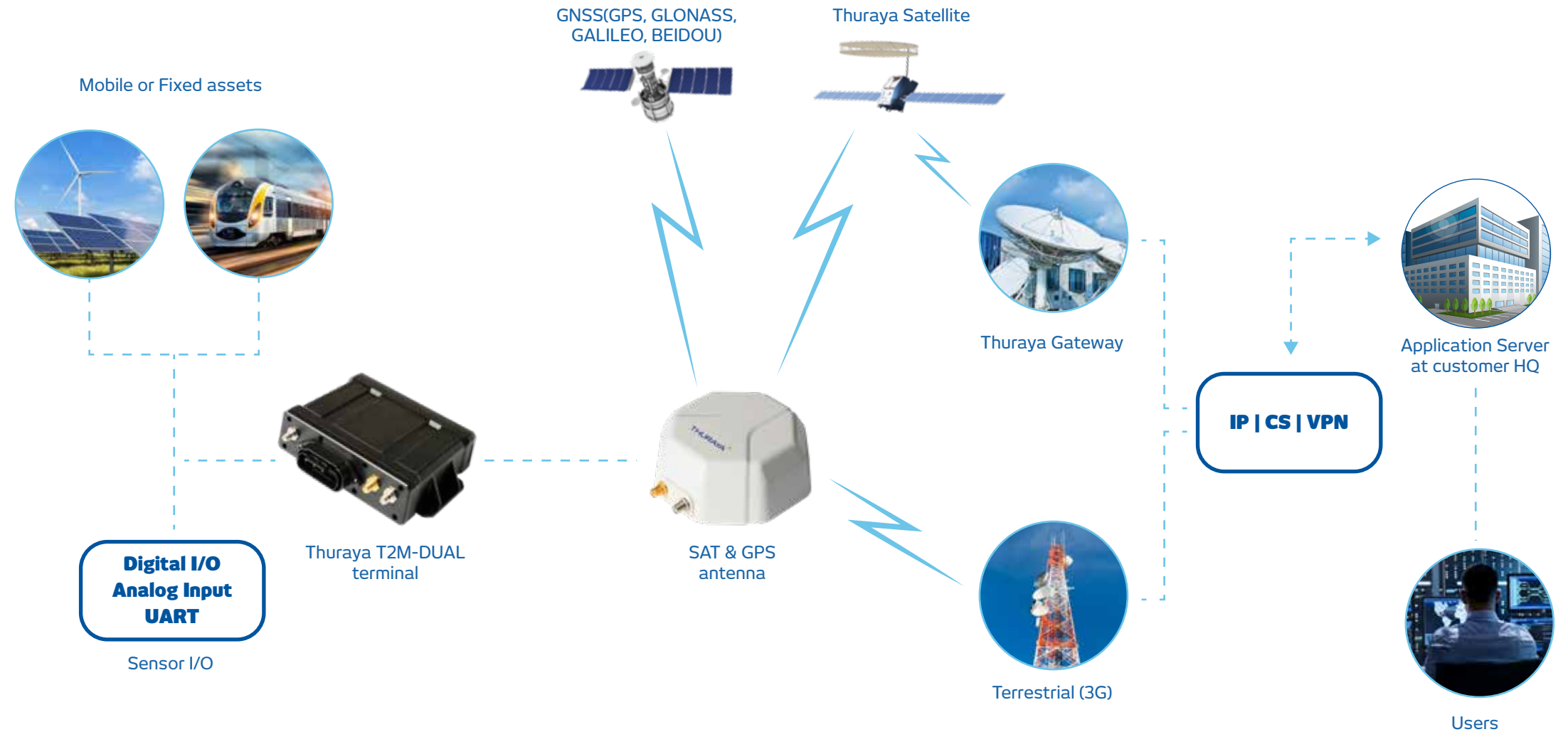
- 1 Tracker mode: It has the capability of sending the CANbus data of GPS data and I/O data
- 2 Logger mode: It has the capability of sending the raw data of the external serial device using UART1 port or UART2 port to the destination server
- 3 Modem mode: Thuraya T2M-DUAL acts as slave to the external device. It supports AT commands initiated from external device

Key Uses

- Fleet management
- Rail tracking
- Oil & Gas SCADA and Pipeline monitoring
- Smart grid and smart metering applications
- Security, surveillance and tracking
- Weather station monitoring
- Hydro and environmental management

Thuraya T2M-DUAL Mode Operation

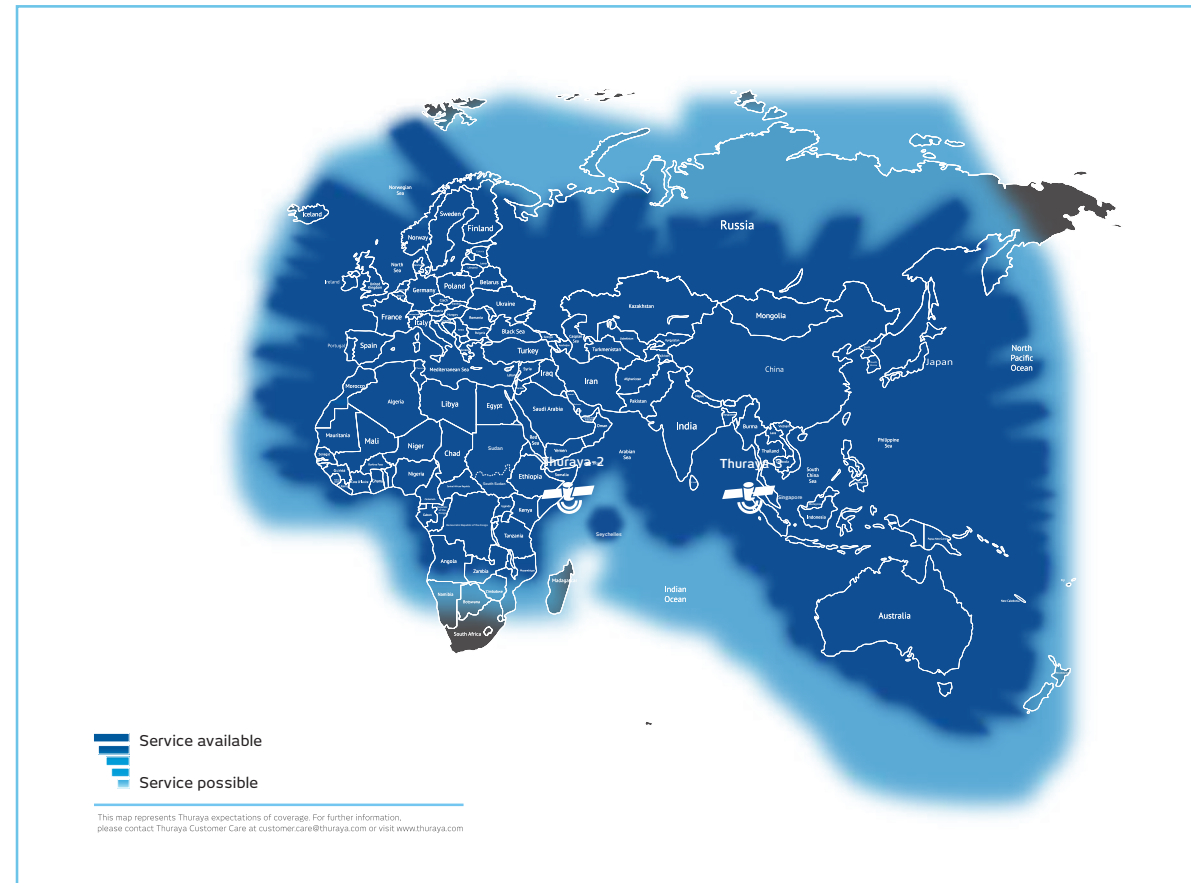
Always-on coverage with auto switching between
Satellite and GSM networks



Thuraya T2M-DUAL Coverage Map

Thuraya T2M-DUAL enables connectivity for remote assets and sensors via satellite from anywhere within Thuraya's coverage area, spanning more than 160 countries across Europe, Africa, Asia and Australia.

Thuraya T2M-DUAL offers the advantage of reliable satellite communications even in the most challenging environments and remote locations.



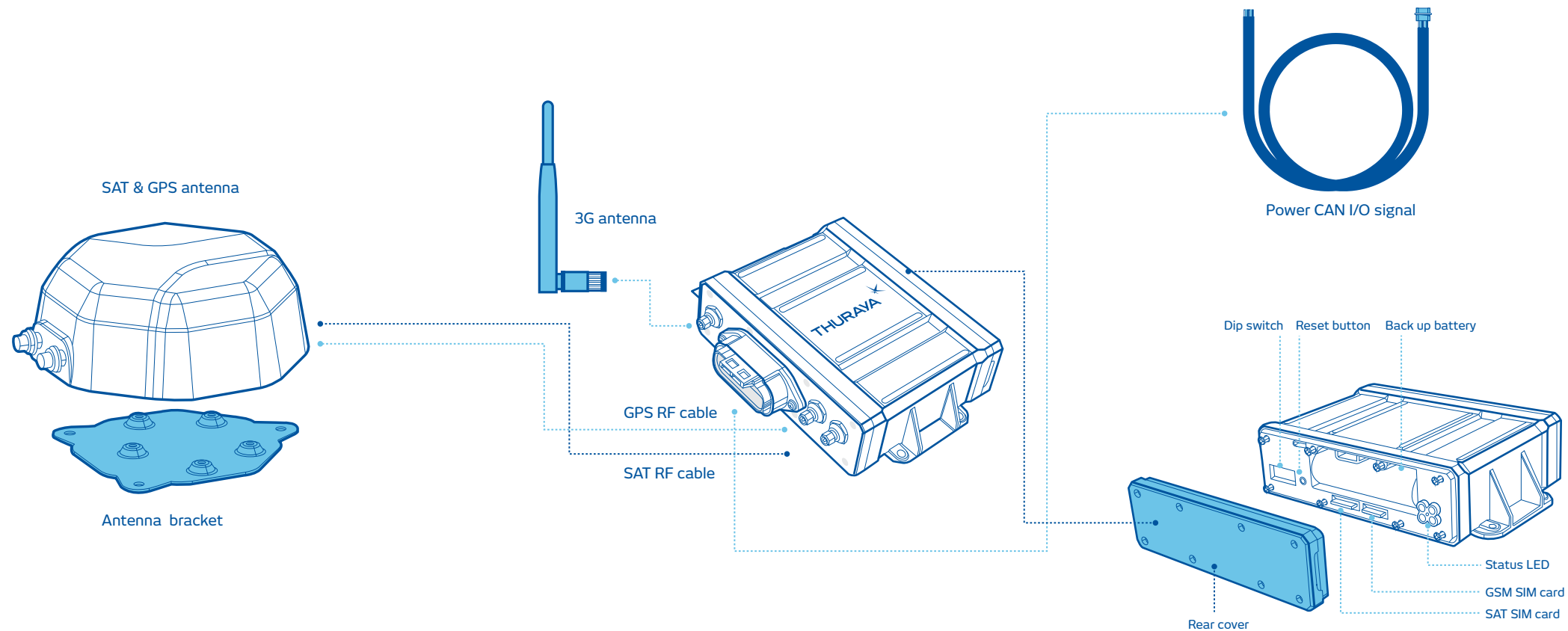
General Specifications



| General Specifications | | |
|------------------------|---|--|
| Item | Specification | Description |
| Size (mm) | 133(W) x 103(L) x 39.8(H) | Unit: mm |
| Weight | 395 g 1.35 kg | T2M - DUAL terminal Including accessories |
| Operating Temperature | -30°C ~ +70°C -20 oC ~ +60°C | Excluding backup battery Including backup battery |
| Battery Capacity | 3000 mAh | Li-ion |
| Storage Temperature | -40°C ~ +85°C | |
| Vibration | Random 5~20Hz 0.05g2/Hz, 20~150Hz: - 3dB/oct.(1.7g rms), 3-axis, 30 minutes for each axis | |
| Humidity | +70°C / 95% / 48 Hours, Operating | |

Contents of the Box

Thuraya T2M-DUAL box contains asset tracker terminal, SAT & GPS antenna, 26 pin waterproof I/O connector, battery, 5M RF cables (SAT & GPS), 3G antenna and fixing screws



Terminal Specifications



| Terminal Specifications | | | |
|-------------------------|---------|--|---|
| Communication Modem | SAT 3G | Thuraya SM-2700 3G Data Modem | Supports Thuraya Satellite Network Supports Band I, Band V, Band VIII. |
| GNSS | Chipset | UBLOX-M8030 | Supports multi-GNSS: GPS, Beidou, Glonass, Galileo |
| | TTFF | • Cold Start: 26sec • Hot Start : 1sec | |
| Ingress Protection | | > IP66 | |
| Operating Voltage | | +10 Vdc ~ +34 Vdc | |
| I/O Connector | | 26 Pin | Waterproof connector |
| Interfaces | | CANbus protocol (J1939) User programmable CAN configuration 4 Digital Input/ Output 2 Analog ADC Data Input 2 Serial RS232 Port 1-Wire Communication | |
| SIM Slot | | SAT: Mini SIM GSM: Micro SIM | |
| LED | | 4 LEDs | Power, SAT, GSM, GPS |
| Additional | | DIP Switch Reset Button | Set vehicle voltage Reset terminal |
| Antenna | | | |
| SAT & GPS Antenna | | Frequency Impedance Polarization Axial Ratio Gain Size Connector Ingress Protection Mounting | 1525Mhz ~ 1660.5 Mhz (SAT) 50Ω LHCP (SAT) / RHCP(GPS) < 4dB >5dBic@peak 110 (D) x 42(H) SAT: SMA(F), Gold color GPS: SMA(F), Silver color IP67 Magnetic Mounting Bracket Mounting |
| 3G Antenna | | Type Beam Pattern Impedance | Basic: Internal Multi-Band Antenna Optional: External Multi-Band Antenna Omni-Directional 50 Ω |