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# HayTag™ 2.0 for LoRa®

## Very Long Range, Low Power Asset Tracking

### Basic Features:



- Communication range between 0.5 and 10 miles, depending on terrain and antenna height. Utilizes state-of-the-art error correction for maximum signal propagation indoors and outdoors.
- High-precision, on-demand GNSS/GPS location. Includes RSSI-based trilateration option.
- Operates in unlicensed 915 MHz Bands. No cellular subscription needed.
- Rechargeable lithium battery provides 3-5 year battery life, depending on usage

### Ruggedized, Lightweight Hardware:

- Small form factor: 52mm x 43mm x 10mm. Weighs only 20 grams.
- Water resistant to 1 meter (IP67). Ultrasonically welded polycarbonate housing.
- Operating temperature ranging from -45°C to 85°C.
- 1,000 mAh rechargeable Lithium Ion battery. Micro USB port allows for easy recharging.

### Enhanced HayTag Featureset:

- Haystack DASH7 networking engine for LoRa, including LDPC two-way error correction.
- Fully bi-directional communication, including real-time queries, broadcasting, P2P messaging.
- High-precision location via internal GNSS/GPS receiver, with AGPS served by Haystack Gateway.
- Typical 3 year battery life using on-demand GPS location (10 location requests per day).
- Supports customizable geofencing and real-time alerts.
- AES-128 private key security with additional EAX ciphering.
- Requires Haystack Gateway 1.0 for LoRa
- Rapid integration to cloud-based applications and notifications via Haystack's MQTT interface

### Tech Specs:

- DASH7 on 915 MHz ISM band, with adaptive data rate: 1 - 50 kbps
- 152 dB real-world link budget @ 1kbps, <1% PER, exceeds that of any other LoRa endpoint.
- Typical avg. power usage: 30 - 100  $\mu$ W (configurable, also depends on network load)
- Built-in temperature sensor
- FCC, Industry Canada

### EXCELLENT RANGE

Using Semtech's Lora™ LPWAN radio technology, HayTag offers outdoor communication range of 0.5 to 10 miles, depending on terrain.

### LONG BATTERY LIFE

Haystack's patented DASH7 networking software stack ensures multi-year battery life in most cases, even when utilizing GPS.

### CONVENIENT FORM FACTOR

At only 52mm x 43mm x 10mm and weighing about the same as three quarters, HayTag can be applied to a wide range of mobile asset classes.

### BUILT FOR CUSTOMIZATION

Inside each HayTag is a sophisticated microcomputing platform that runs the DASH7 networking stack. HayTag's DASH7 firmware can be customized to fit requirements for a wide range of use cases. HayTag is available for custom branding and alternative form factors are also available.

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