



Features

- Economical wired and wireless sensor peripherals extend Geo F2 solution capabilities by enabling the measurement of:
 - Ambient temperature
 - Light intensity
 - Humidity
- The Geo F2 sensor options enhance a widening range of remote, battery-powered monitoring applications including embedded cargo tracking, supply chain visibility, asset location assurance and law enforcement.
- Real-time sensor data is reported through the *FSNtracks* web-based tracking and monitoring platform.
- Measurement ranges (upper/lower limits) can be customized to define acceptable thresholds in *FSNtracks* so that alerts and notifications are issued if the sensor reports measurements outside the range.
- Flexible deployment scenarios:
 - Quality assurance for refrigerated products.
 - Alerts for significant changes in light intensity indicating packages are opened and potentially tampered.
 - Notification of compromising environmental situations for moisture sensitive shipments such as artwork.

FreightWatch Geo F2 Covert Tracker sensor options augment remote location data by measuring environmental conditions such as ambient temperature, light intensity and humidity. Packaged in wireless and wired form factors, Geo F2 peripheral sensors provide critical data about the internal condition of a package, sealed container or shipment for quality assurance, chain of custody or tamper detection purposes.

WIRELESS XBEE® MULTI-SENSOR

The FreightWatch Geo F2z has an integrated ZigBee® radio module and is programmed to receive data from one or more companion F2 Wireless XBee Multi-Sensor units. The XBee is a battery-powered device that reports ambient temperature, light intensity and humidity data. When placed within range of an F2z tracker (up to 133 ft.), sensor data is relayed along with tracker location data to *FSNtracks*.

Multiple wireless XBee units can be placed in the same container (suggested front of the load, middle and back for large loads), for zoned sensor data reporting through a single Geo F2z device. The XBee can also be located in a sealed container while the F2 is placed outside to report internal conditions.



Wireless XBee® Multi-Sensor and Geo F2z Tracker

Specifications

Digi XBee® Wireless Sensors

Size

- (L) 2.7" x (W) 2.5" x (H) 1.3"
- (L) 6.85 x (W) 6.35 x (H) 3.3 cm

Environmental

- Operating temperature: -18°C to 55°C, -0.4°F to 131°F
- Power Requirements: 3 x AA alkaline 1.5V batteries

Weight

- 0.35 lb/0.158 kg (with batteries)

Performance

- Indoor/Urban range: 133 ft/40 m
- Outdoor RF Line-of-Sight Range: 400 ft/120 m
- Transmit Power Output: 1.25 mW
- RF Data Rate: 250,000 bps

Temperature Sensor

- Range: -18°C to +55°C, -0.4°F to +131°F
- Accuracy: +/- 2°C

Ambient Light Sensor

- Range of Spectral Bandwidth: 360 to 970 nm (similar to human eye); reports in lux units
- Wavelength of Peak Sensitivity: 570 nm

Humidity Sensor

- Range: 0 to 100% RH
- Interchangeability:
 - +/- 5% RH (0% RH to 59% RH)
 - +/- 8% RH (60% RH to 100% RH)
- Accuracy: +/- 3.5% RH

Frequency

- 2.4 GHz (ISM)
- Internal Antenna



WIRED TEMPERATURE SENSOR



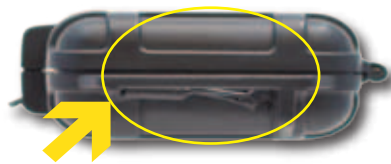
Geo F2x Tracker with Wired Temperature Sensor

The FreightWatch F2 Wired Temperature Sensor is an economical peripheral that enables any Geo F2 tracker to report ambient temperature. The sensor connects directly to and is powered by the Geo F2. Typically, the Wired Temperature Sensor is mounted externally on the device enclosure or tracking case. Alternatively, the sensor can be inserted into a sealed container with a custom length lead wire up to 25 feet away from the device. This configuration enables measurement of more extreme environments that exceed the F2's operating temperature range. Users can set thresholds in FSNtracks for automatic alerts indicating when desired temperature ranges have been achieved or breached.

Specifications

Geo F2 Wired Temperature Sensor

- Precision thermistor material
- Sensor Probe Dimensions
0.18" (0.46 cm) diameter; 24 AWG zipcord lead wire
- Sensor Unit Temperature Range
-22° to 176°F/-37° to 80°C
- Geo F2 Standard Operating Temperature Range
-4° to 140°F/-20° to 60°C
- Accuracy
± 0.36°F/± 0.2°C
- Stability
0.24°F/0.13°C
over 5 years



F2 Wired Temperature Sensor mounted on a 1000 OtterCase

LIGHT SENSOR ATTACHMENT

The FreightWatch F2 Light Sensor Attachment plugs into the Geo F2 and measures ambient light intensity. The device and sensor can be housed in a translucent plastic protective case and enclosed in a sealed package or container. Once activated via the online FSNtracks service platform, the Light Sensor Attachment monitors nearby light intensity in real-time. If the sealed package or container is opened, the Geo F2 immediately sends an alert indicating tampering may have occurred.



Geo F2 Tracker with Light Sensor Attachment in a Clear OtterBox 1000 Case

Specifications

Geo F2 Light Sensor Attachment

- Sensor Size
(L) 1.46"/3.7 cm x (W) 0.79"/2 cm x (H) 0.28"/0.7 cm
- Accuracy
± 4 lux from 0 to 254 lux

Note: Geo F2 tracking devices support a single peripheral attachable wired sensor.



About FreightWatch Security Net (FSN)

FreightWatch Security Net (FSN), a FreightWatch Group company, combines wireless communications and machine-to-machine (M2M) engineering expertise in its "track and trace" devices that work where traditional GPS technology does not. FSN manufactured products and online services deliver real-time remote location and sensor data. Whether it is embedded cargo tracking, supply chain visibility, asset location assurance or covert surveillance, FreightWatch portable, battery-powered tracking solutions provide a reliable layer of security for a widening range of applications. FSN technology is the trusted choice of high value shippers, the transportation industry, corporate asset managers and law enforcement agencies alike. Founded in 2005, FreightWatch Security Net is based in Austin, Texas, and provides cross border tracking systems to its affiliates worldwide.