The CelloTrack Nano solution provides precisely the knowledge you need to manage your cargo and mobile assets more effectively.

**Visibility**
Enables real-time monitoring of the location and condition of cargo, assets and goods, including specific alerts related to issues and delays, using a smart portable hub with integrated sensing capabilities and a Wireless Sensor Network (WSN) based on the MultiSense Devices.

**Efficiency**
Ensures continuous recording, event-triggered logic and ‘management by exceptions’ through flexible programming of business rules to eliminate supply chain mistakes, avoid delays or damages, and reduce insurance expenses.

**Security**
Prevents theft, losses or misplacements by using proximity, tampering and location sensing throughout the entire supply chain.
Knowledge is Power
CelloTrack Nano gives you that Power in Real-Time!

The CelloTrack Nano solution offers the following sensing capabilities:
• CelloTrack Nano hub: temperature, barometric pressure, sound, tampering, impact, geo fencing, movement, light, man down.
• MultiSense: temperature, humidity (MultiSense TH), door status, impact/free fall, movement, light.

SiRFstarV™ engine supporting Hybrid GNSS.
Communicates with backend server via cellular communication (2G, 3G networks) for remote monitoring (OTA), configuration and firmware upgrades.
Compliant with cold chain standards and regulations including pharmaceuticals (GDP), perishables transportation standards (EN12830).
A scalable solution, utilizing a wide range of cost-effective peripheral sensors resulting in reduced TCO (total cost of ownership).
Configuration and upgrades via the powerful Cellocator+ software tool.

Highlights
Use Cases

The CelloTrack Nano is the essence of IoT - where sensors, location and communication technologies meet.

The versatility and modularity of the CelloTrack Nano solution enable you to meet almost any of your monitoring needs, such as:

**Cold Chain**

Real-time monitoring of temperature and humidity controlled containers, trailers, pallets or boxes with pharmaceutical or perishable goods. The CelloTrack Nano enables on-the-fly responses when deviations from the required temperature boundaries occur, and guarantees compliance with the strictest cold chain regulations (EN 12830).

**Logistics & Security**

Verification that the required shipment conditions of high-value goods (such as art or consumer electronics) from manufacturer sites or distribution centers are kept according to the defined specifications.

The CelloTrack Nano provides real-time alerts in case the goods are mishandled – for example, if they are unloaded at the wrong address, deviate from the planned route, or are opened unexpectedly.

Continuous recording and event-triggered logic performed by the CelloTrack Nano help improve efficiency by reducing supply chain mistakes, avoiding delays or damages. When an airborne shipment is part of the route, all data is logged by the CelloTrack Nano and is transmitted upon landing.

**Rental Equipment**

Efficient monitoring of rented assets, such as storage containers, construction machines, generators, trailers, mobile offices, and chemical toilets.

The CelloTrack Nano enables stakeholders to monitor the profile of their assets’ usage during the rental period, including location, damage, displacement, operation hours (by movement/vibrations), door status and other inventory management aspects.

**Lone Worker**

A quick and intuitive way to indicate distress by activating a panic button, or relying on the 3D accelerometer profile, which automatically indicates modes such as man-down (prolonged inactivity).

The CelloTrack Nano enables the monitoring of workers’ locations, health statuses and general activity (such as check-in / check out, and movement).
Automatic Airplane Mode

When the automatic airplane mode is enabled, the CelloTrack Nano unit, based on the analysis of its internal multiple sensors, identifies that the flight has commenced and automatically shuts down RF transmissions after take-off and during the entire flight. The CelloTrack Nano logs all events internally and transmits those events upon landing.

Normal transmission mode is automatically renewed as soon as the airplane is completely still (and the engines are turned off). At this point, all the logged events are transmitted to the back-end.

This unique feature complies with FAA guidelines and enables customers to cover end-to-end airborne shipment scenarios, including shipment by land-air-land.

CelloTrack Nano 20 Specifications

### 2G variant Cellular Communication

<table>
<thead>
<tr>
<th>GSM Modes</th>
<th>Quad band GSM (2G - worldwide): GSM/GPRS: 42.8[UL]/85.6[DL] Kbps, 850/900/1800/1900MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Output</td>
<td>2W for 850/900 bands, 1W for 1800/1900 bands</td>
</tr>
<tr>
<td>SIM</td>
<td>Internal, full size, replaceable, remote PIN code management, option for M2M type SIM chip</td>
</tr>
<tr>
<td>Antenna</td>
<td>Internal, On board (PCB) penta band GSM antenna</td>
</tr>
<tr>
<td>Packet Data</td>
<td>TCP/IP, UDP/IP</td>
</tr>
<tr>
<td>SMS</td>
<td>PDU mode</td>
</tr>
</tbody>
</table>

### 3G variant Cellular Communication

<table>
<thead>
<tr>
<th>GSM Modes</th>
<th>Five bands UMTS (WCDMA/FDD): 800, 850, 900, 1900 and 2100 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSDPA data rates</td>
<td>7.2[DL] / 5.76[UL] Mbps</td>
</tr>
<tr>
<td>Quad-band GSM</td>
<td>850, 900, 1800 and 1900 MHz</td>
</tr>
<tr>
<td>GPRS data rates</td>
<td>85.6[DL] / 85.6 [UL] Kbps</td>
</tr>
<tr>
<td>Power Output</td>
<td>Up to 2.7W for 800/850/900 bands, and up to 1.9W for 1800/1900/2100 bands</td>
</tr>
<tr>
<td>SIM</td>
<td>Internal, full size, replaceable, remote PIN code management, option for M2M type SIM chip</td>
</tr>
<tr>
<td>Antenna</td>
<td>Internal, On board (PCB) penta band GSM antenna</td>
</tr>
<tr>
<td>Packet Data</td>
<td>TCP/IP, UDP/IP</td>
</tr>
<tr>
<td>SMS</td>
<td>PDU mode</td>
</tr>
</tbody>
</table>

### GPS

<table>
<thead>
<tr>
<th>Technology</th>
<th>CSR SiRFstarV™ engine supporting Hybrid GNSS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensitivity (tracking)</td>
<td>-165dBm</td>
</tr>
<tr>
<td>Acquisition (normal)</td>
<td>Cold &lt;35Sec, Hot&lt;1Sec, Warm &lt;9 Sec</td>
</tr>
<tr>
<td>Internal Antenna</td>
<td>Internal, on board patch antenna</td>
</tr>
</tbody>
</table>

### Wireless Sensor Network

| BT 4.1 (BLE)       | 2.4GHz wireless communication                                     |

1. BT SIG certification is under product evolution process
Interfaces

Voice Interface  
Noise suppression  
Eavesdropping option  

COM port  
USB 2.0 interface over standard micro-USB connector  

Connectors  
Micro-USB connector  

Nano Power Harness  
Supports:  
One digital input to be used with a Dry Contact  
Power: Input: 6-32V, Output: 5V  
Harness length: 120cm  

Power

Input Voltage  5VDC ±5%  

Average Current Consumption  
Normal: 30mA  
Economic: <12mA  
Hibernation: <1mA  
Shipment (Off): <50uA  

Internal Battery(2)  
Li-Ion Polymer, 3.7V, 1000mAh, rechargeable  
Embedded NTC for temperature controlled charging  
Operating Temperature: -20 (65% charge) to 60°C  
Protections: Temperatures, over current, overcharge and over discharge  

Sensors

Temperature  
Typical accuracy(3):  
0°C to 85°C: ±0.5°C  
-25°C to 0°C: ±1.0°C  
-30°C to -25°C: ±2.0°C  
Resolution: 0.1°C  

Accelerometer  
3D, ±8g range, 4mg resolution, I2C interface  

Light  
Effective range 1÷1023 lux  

Impact  
Impact with threshold up to 8g  

Movement  
Detection of stationary or movement state by accelerometer  

Tampering  
Dual tampering detection: from Cradle and from mounting surface  

Barometric Pressure  
Air pressure translated to "Meters above sea level"  
Effective range -400m÷6153m, Resolution 0.1m  

Listen in  
Built-in microphone  

Environment

Temp, operation  
-20°C to +60°C full performance (Discharging)  
Charging: 0°C ÷ 45°C  

Temp, storage  
-40°C to +85°C  

Humidity  
95% non-condensing  

Ingress Protection  
IP66  

Vibration, Impact  
According to standards EN 12830  

Mounting without cradle  
Double-sided adhesive  

Mounting with cradle  
3 screws or two nylon tie-wraps and/or double-sided adhesive  
Optional strong magnetic cradle  
Optional belt clip adapter  

Certifications

FCC  
Part 15 Subpart B, part 22/24 compliant  

CE  
CE EMC & R&TTE according to 89/336/EEC or 1999/5/EC  
CE Safety EN60950-1:2001+A11:2004  

IC  
Industrial Canada  

PTCRB  
TRP, TIS, Spurious and harmonics emission  

UL  
UL regulation tests  

IEC 60529 – IP66  
IEC 60529 – IP66 regulation tests  

AT&T  
AT&T tests  

EN12830:1999  
Temperature recorders for the transport, storage and distribution of chilled, frozen,  
depth-frozen/quick-frozen food and ice cream. Tests performance and suitability.  

GDP  
Good Distribution Practice (Europe, US)  

Dimensions and Weight

Dimensions  86.2 x 59.1 x 22.7 mm  

Weight  94 gr  

Harness

CelloTrack Nano Power Harness  
A robust power connection, used to connect the CelloTrack Nano hub to a permanent power  
source in the vehicle and rental equipment.  
Input: 6-32V ; Output: 5V  
IP66 compliant  

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2. Caution: Risk of explosion if batteries are replaced by an incorrect type. Dispose of used batteries according to the instructions.  
3. The above accuracy is only relevant when working with the internal battery power mode.
MultiSense Device Specifications

Communication

- BT 4.1 (BLE)\(^1\)
- 2.4GHz wireless communication

Power

- Power Output: 8mW

Power Output

- Average current consumption:
  - Transmission pulse: 23mA
  - Active connection with Nano (Avg): <250\(\mu\)A
  - Hibernation (idle, light sensor disabled): <25\(\mu\)A
  - Hibernation (idle, light sensor enabled): <100\(\mu\)A
  - Powered off: <5\(\mu\)A

Internal Battery

- 3V Lithium coin battery CR2450
- Protections: over current

Sensors

- Temperature
  - MultiSense typical accuracy:
    - 0°C to 85°C: ±0.5°C
    - -25°C to 0°C: ±1.0°C
    - -30°C to -25°C: ±2.0°C
    - Resolution: 0.1°C
  - MultiSense TH typical accuracy:
    - -10°C to 85°C: ±0.3°C
    - -10°C to 85°C: ±0.3°C
    - -20°C to -10°C: ±0.4°C
    - Resolution: 0.1°C

- Accelerometer
  - 3D, ±8g range, 4mg resolution

- Humidity (MultiSense-TH)
  - Typical accuracy ±3% RH, Resolution 0.1% RH

- Light
  - Effective range 1÷512 lux

- Open/close door
  - 10-30mm range an optionally provided magnet

- Free fall / Impact
  - Free fall detection with programmable threshold, Impact with threshold up to 8g

Environment

- Temp, operation
  - -30°C to +85°C

- Temp, storage
  - -40°C to +85°C

- Humidity
  - 95% non-condensing

- Ingress Protection
  - IP67

- Vibration, Impact
  - According to EN 12830

- Mounting
  - 2 screws or Nylon tie-wraps and/or two sided adhesive

Certifications

- FCC
  - FCC regulation tests

- CE
  - CE (EMC, Safety, R&TTE)

- UL
  - UL regulation tests

- IEC 60529 – IP66
  - IEC 60529 – IP66 regulation tests

- EN12830:1999
  - Temperature recorders for the transport, storage and distribution of chilled, frozen, deep-frozen/quick-frozen food and ice cream. Tests performance and suitability

- Environmental
  - Environmental regulation tests

Dimensions and Weight

- Dimensions
  - 58.5 x 46 x 15mm

- Weight
  - ~19 gr (without battery)

1. BT SIG certification is under product evolution process

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CelloTrack Nano Brochure. ver. 2.0

CelloTrack Nano Movie: