Cellocator
– BY POINTER –

CelloTrack Nano™

Asset & Cargo Management IoT Solution Based on a Smart Hub and Wireless Sensor Network

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

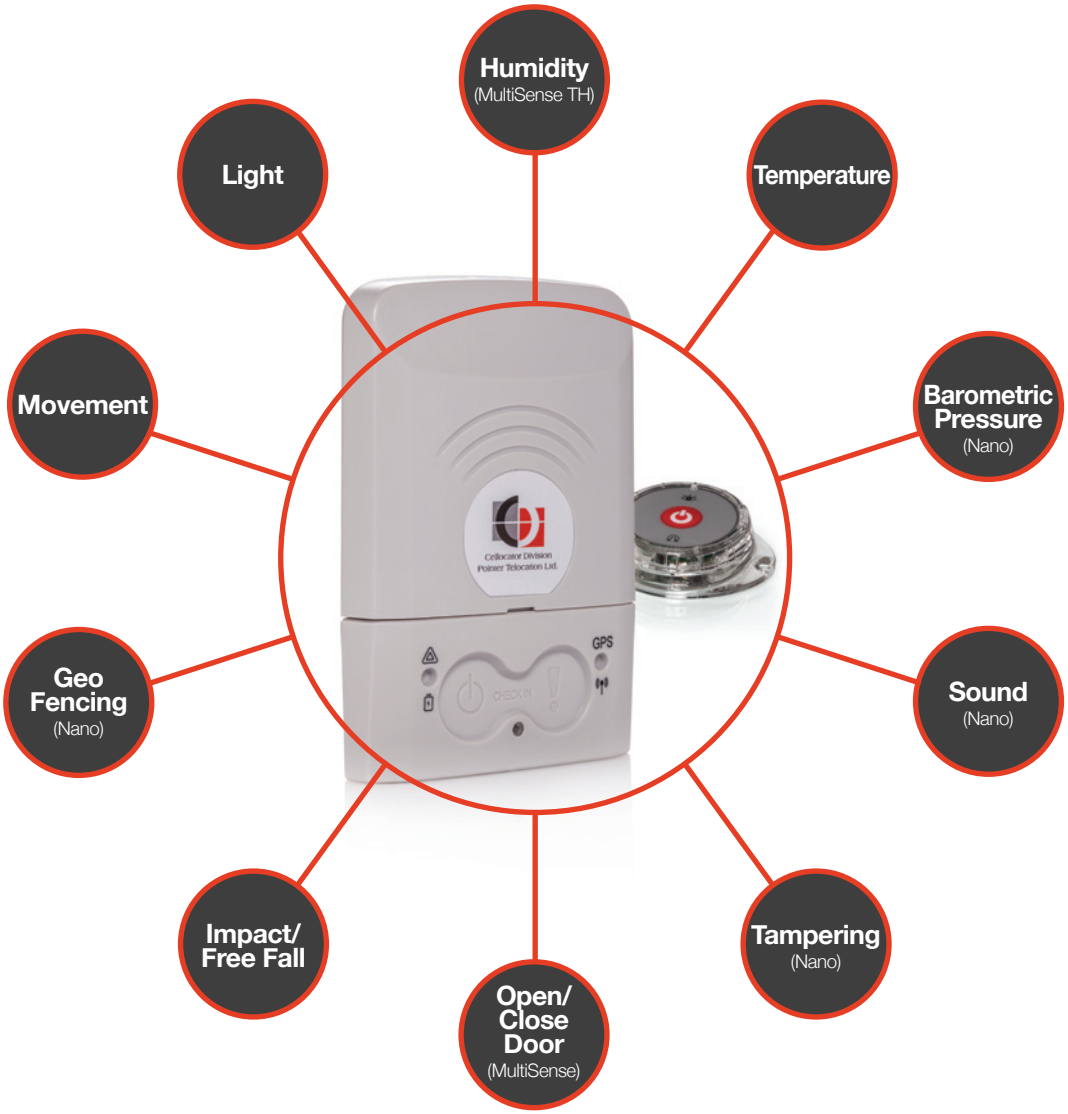
Visibility
Enables real-time monitoring of the location and condition of cargo, assets and goods, including specific alerts related to issues and delays, using a smart portable hub with integrated sensing capabilities and a Wireless Sensor Network (WSN) based on the MultiSense Devices.

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 monitoring throughout the entire supply chain.

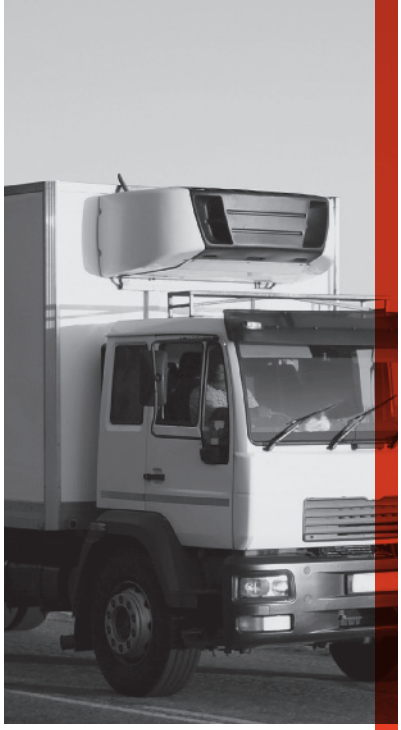
Knowledge is Power

CelloTrack Nano gives you that Power in Real-Time!



Highlights

- The CelloTrack Nano solution offers the following capabilities:
  - CelloTrack Nano hub: temperature, barometric pressure, sound, tampering, impact, geo fencing, movement, light, man down.
  - MultiSense: temperature, humidity (MultiSense TH), magnetic (door/window 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.
- Compliance with cold chain standards and regulations – GDP for pharmaceuticals and EN12830 for transportation of perishable goods.
- A scalable solution utilizing a wireless sensor network.
- Configuration and upgrades via powerful software tools for firmware upgrades and configuration management.
- Cross-platform display.



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 or humidity 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, e.g. check-in / check out, and movement.

Automatic Airplane Mode

The automatic airplane mode enables customers to cover end-to-end airborne shipment scenarios, including shipment by land-air-land. 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. At this point, all the logged events are transmitted to the back-end.

This unique feature complies with FAA and IATA guidelines.

End-to-End Shipment

CelloTrack Nano 20 Specifications

2G variant Cellular Communication	
GSM Modes	Quad band GSM (2G - worldwide): GSM/GPRS: 42.8[UL]/85.6[DL] Kbps, 850/900/1800/1900MHz
Power Output	Up to 2W for 850/900 bands, and up to 1W for 1800/1900 bands
SIM	Internal, full size, replaceable, remote PIN code management, option for M2M type SIM chip
Antenna	Internal, On board (PCB) penta band GSM antenna
Packet Data	TCP/IP, UDP/IP
SMS	PDU mode
3G variant Cellular Communication	
GSM Modes	Five bands UMTS (WCDMA/FDD): 800, 850, 900, 1900 and 2100 MHz HSDPA data rates: 7.2[DL] / 5.76[UL] Mbps Quad-band GSM: 850, 900, 1800 and 1900 MHz EDGE data rates: 237[DL] / 237[UL] Kbps GPRS data rates: 85.6[DL] / 85.6 [UL] Kbps
Power Output	Up to 2W for 800/850/900 bands, and up to 1W for 1800/1900/2100 bands
SIM	Internal, full size, replaceable, remote PIN code management, option for M2M type SIM chip
Antenna	Internal, On board (PCB) penta band GSM antenna
Packet Data	TCP/IP, UDP/IP
SMS	PDU mode
GPS	
Technology	CSR SiRFstarV™ engine supporting Hybrid GNSS
Sensitivity (tracking)	-165dBm
Acquisition (normal)	Cold <35Sec, Hot<1Sec, Warm <9 Sec
Internal Antenna	Internal, on board patch antenna
Wireless Sensor Network	
Short range RF	2.4GHz wireless communication

Interfaces	
Voice Interface	Noise suppression Eavesdropping option
COM port	USB 2.0 interface over standard micro-USB connector
Connectors	Micro-USB connector
CelloTrack Nano Power Harness (add-on)	Supports: One digital input to be used with a Dry Contact Power: Input: 7.5-32V, Max 0.7A, Output: 5V Harness length: 120cm External input for 3rd party external sensors
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, 1300mAh, rechargeable Embedded NTC for temperature controlled charging Operating Temperature: -20 (65% charge) to 60°C Protections: Temperature, 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/Free Fall	Impact/Free fall 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
Temp, storage	-40°C to +85°C
Humidity	95% non-condensing
Ingress Protection	IP66
Vibration, Impact	According to standard 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	Industry Canada
PTCRB	TRP, TIS, Spurious and harmonics emission
UL	UL regulation tests
IEC 60529 – IP66	IEC 60529 – IP66 regulation tests
AT&T	AT&T certified
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. Designation: -20 to +30°C – T/B/1 +30 to +60°C – T/B/2
GDP	Good Distribution Practice (Europe, US)
SAR	According to IEC 62209-2, 2.5cm from the body
FAA	Comply with regulation instructions (14 CFR 91,21 and 121.306)
Dimensions and Weight	
Dimensions	86.2 x 59.1 x 22.7 mm
Weight	96 gr

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

MultiSense Device Specifications

Communication		
Short range RF	2.4GHz wireless communication	
Power Output	8mW	
Power		
Average current consumption	Transmission pulse: 23mA Active connection with Nano (Avg): <250uA Hibernation (idle, light sensor disabled): <25uA Hibernation (idle, light sensor enabled): <100uA Powered off: <5uA	
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 -15°C to -10°C: ±0.4°C -25°C to -15°C: ±0.5°C -30°C to -25°C: ±0.6°C Resolution: 0.1°C
Accelerometer	3D, ±8g range, 4mg resolution Free fall detection with programmable threshold, Impact with threshold up to 8g	
Humidity (MultiSense-TH)	Typical accuracy 0%-80% ±3% RH, Resolution 0.1% RH	
Light	Effective range 1÷512 lux	
Magnetic	10-30mm range an optionally provided magnet. Used to detect open/closed door	
Environment		
Temp, operation	-30°C to +85°C	
Temp, storage	-40°C to +85°C	
Humidity	95% non-condensing	
Ingress Protection	IP67	
Shock, Vibration	Shock resistance according to EN 60068-2-27, vibration according to EN12830	
Mounting	2 screws or Nylon tie-wraps and/or double-sided adhesive	
Certifications		
FCC	FCC regulation tests	
CE	CE (EMC, Safety, R&TTE)	
UL	UL regulation tests	
IEC 60529 – IP67	IEC 60529 – IP67 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. Response time t90: 10 minutes MultiSense-TH designation: T/D/1 MultiSense designation: -30°C to 40°C – T/D/1 40°C to 85°C – T/D/2	
EN 13485:2002	Thermometers for measuring the air and product temperature for the transport, storage and distribution of chilled, frozen, deep frozen/ quick-frozen food and ice cream - Tests, performance, suitability. MultiSense-TH designation: T/D/0.5 MultiSense designation: -30°C to 40°C – T/D/1 40°C to 85°C – T/D/2	
Environmental	Environmental regulation tests	
Dimensions and Weight		
Dimensions	58.5 x 46 x 15mm	
Weight	~19 gr (without battery)	

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CelloTrack Nano Movie:

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