Q-TRACK™ Advanced LiDAR Perception Software and 3D LiDAR Sensors

INTELLIGENT | ACCURATE | PROACTIVE

Q-TRACK transforms physical security by combining advanced perception software with 3D LiDAR sensors to deliver precise, real-time detection, classification, and tracking of people and vehicles. By operating in true 3D space, Q-TRACK eliminates the ambiguity of traditional video and radar systems, dramatically reducing false alarms and improving detection accuracy. In real-world deployments, legacy systems generated tens of thousands of nuisance alarms, while Q-TRACK reduced alerts to near zero, delivering only verified intrusion events. With wider coverage, fewer devices, and seamless integration into existing systems, Q-TRACK reduces infrastructure complexity and total cost of ownership.

Benefits

- **3D Real-time Proactive Awareness:** Comprehensive 360° view of your surroundings for proactive decision-making.

- **Privacy-Assured Operation:** Q-TRACK does not capture any personally identifiable information (PII), ensuring privacy compliance and safeguarding sensitive data.

- **Wide Coverage with High Accuracy:** Q-TRACK sensors provide an impressive coverage area up to 165,000 square feet (15,000 square meters), ensuring high accuracy in object detection, tracking, and classification of people, vehicles, and sub-vehicles.

- **Low Cost Per Square Foot:** Each sensor can classify objects up to 420 feet/140 meters, dramatically reducing the number of sensors, cables, networking ports, and installation runs to deliver industry-leading total cost of ownership.

- **20x Higher Alarm Detection Accuracy:** Innovative features such as occlusion filter & motion threshold filter help provide 20x higher accuracy in detecting real alarms at less than half the price of existing technologies.

- **Simultaneous Tracking of 1,000+ Objects:** With Q-TRACK, you can track 1,000+ unique objects simultaneously, ensuring comprehensive monitoring of your environment.

- **Continuous Object Tracking with Sensor Fusion:** Our sensor fusion technology enables continuous object tracking in virtually unlimited areas, providing a reliable and continuous monitoring solution.

- **Unlimited Range with Mesh Network:** Create a mesh network of sensors and servers to continuously track objects over an unlimited range, allowing for flexible and scalable deployments.

- **Speed, Direction, and Geolocation Detection:** Q-TRACK can accurately detect the speed, direction, and geolocation of objects, enabling you to respond promptly to potential threats.

- **Reliable Performance in Harsh Environments:** Q-TRACK is designed to operate reliably in harsh environmental conditions, ensuring continuous surveillance without compromise.

- **Seamless Integration with Existing Systems:** Q-TRACK seamlessly enhances existing security systems through a large ecosystem of integrations with VMSs, cameras, access control solutions, PSIMs, and analytics solutions.

- **Buying Flexibility:** Budget this advanced solution as a capital expense (CAPEX) or an operating expense (OPEX) via the Security as a Service subscription.

Use Cases

Perimeter & Intrusion

- PIDS (Perimeter Intrusion Detection)
- Multi-Surface Perimeter Protection (Fence, Wall, Rooftops)
- Restricted Area / Virtual Fence Monitoring

Tracking & Threat Detection

- Real-Time Object Tracking (People & Vehicles)
- Access Control Enforcement (Tailgating & Unauthorized Entry)

Asset & Infrastructure Protection

- Asset Protection
- Blind Spot Elimination & Coverage Enhancement

Key Markets

Critical Infrastructure
Oil & Gas, Substations, Water Treatment, Solar, Nuclear, Data Centers, Correctional Facilities, Airports, Military Bases, Dams, Ports, Borders

Enterprises
Education, Pharma, Manufacturing, Delivery Services, Distribution Centers, Warehouses, Parking Lots, Commercial

Smart Spaces & Cities
Airports, Retail, Commercial, Bridges, Highways, Intersections, Transportation, Museums, Galleries, Casinos

SPECIFICATIONS

QUANERGY
See beyond.

Q-TRACK Client

PARAMETER

Application	Visualize and configure Q-TRACK Software Server (not required during normal operation)
Operating System	Windows 10/11, Windows Server 2022 and Ubuntu 20.04
Minimum System Requirements	Intel Core i3 with AVX2, 4 GB RAM, OpenGL-compliant graphics, Gigabit Ethernet

Q-TRACK Server

PARAMETER

Application	Object detection, tracking, and classification for security, smart buildings, smart spaces
Operating System	Windows 10/11 and Ubuntu 20.04
Object Information	Provides an object list with 3D direction and position, speed, and classification in Protobuf, JSON, NDJSON or XML format
†Classification Types	Human, Vehicle (Two-Wheeler, Passenger and Commercial), Unknown
Continuous Tracking Range (3m mounting height, 10% object refl.)	Q-TRACK LR: 140m (70m radius range) Q-TRACK HR: 80m (40m radius range) Q-TRACK Dome: 40m (20m radius range)
Maximum Number of Simultaneous Objects	1,000+ objects depending on the hardware processing platform and number of sensors
Minimum System Requirements	Intel Core i3 with AVX2, 4 GB RAM, Gigabit Ethernet (2 virtual cores + 2 virtual cores per sensor) 100 MB storage memory (no recording)
Recording Storage Requirement	150 MB/sensor/min (single return mode)
VMS Compatibility	Many VMSs such as Motorola Unity, Milestone XProtect, Genetec Security Center, Bosch BVMS, Hanwha Wave, Network Optix, Mirasys, Flir Latitude, Salient, Digifort, Advancis, Luxriot and more**
Additional Features	Direct PTZ Camera control via ONVIF** and Native API (Axis, Bosch)

Q-TRACK 3D LiDAR Sensors

PARAMETER	Q-TRACK LR	Q-TRACK HD	Q-TRACK Dome
Laser Class	Class 1 Laser Product (eye safe, IEC 60825-1)		
Wavelength	905nm	905nm	905nm
Frame Rate	5 – 20Hz	5 – 20Hz	5 – 20Hz
Data Rate	17-25 Mbps	17-25 Mbps	17-25 Mbps
Field of View (FOV)	Horizontal: 360°, Vertical: 12.43°	Horizontal: 360°, Vertical: 70°	Horizontal: 360°, Vertical: 90°
Range	140m Diameter at 10% reflectivity	80m Diameter at 10% reflectivity	40m Diameter at 10% reflectivity
Output Connection	RJ-45 802.3at (PoE+)	RJ-45 802.3at (PoE+)	RJ-45 802.3at (PoE+)
Nominal Power	18W	12W	12W
Input Voltage	42.5-57VDC	42.5-57VDC	42.5-57VDC
Operating Temperature	−20°C to +60°C (−4°F to +140°F)	−20°C to +60°C (−4°F to +140°F)	−20°C to +60°C (−4°F to +140°F)
Storage Temperature	−40°C to +105°C (−40°F to +221°F)	−20°C to + 85°C (−4°F to 185°F)	−20°C to + 85°C (−4°F to 185°F)
Nominal Weight	1368g	1700g	1400g
Dimensions	115mm (D) x 134mm (H)	116 mm x 119 mm	112 mm x 124 mm
Shock and Vibration	ETSI EN 300 019-2-5, IEC Class 5M3	ETSI EN 300 019-2-5, IEC Class 5M3	ETSI EN 300 019-2-5, IEC Class 5M3
Environmental Protection	IP67	IP67	IP67
Certifications & Compliance	FDA, FCC, CE, RoHS, WEEE, NDAA, GDPR & Other Regional Privacy Regulations		
Warranty	1+4 years (CAPEX), duration of the subscription (OPEX)		

*Specifications are subject to change without notice   **Contact Quanergy Sales for the supported VMS, and Camera list