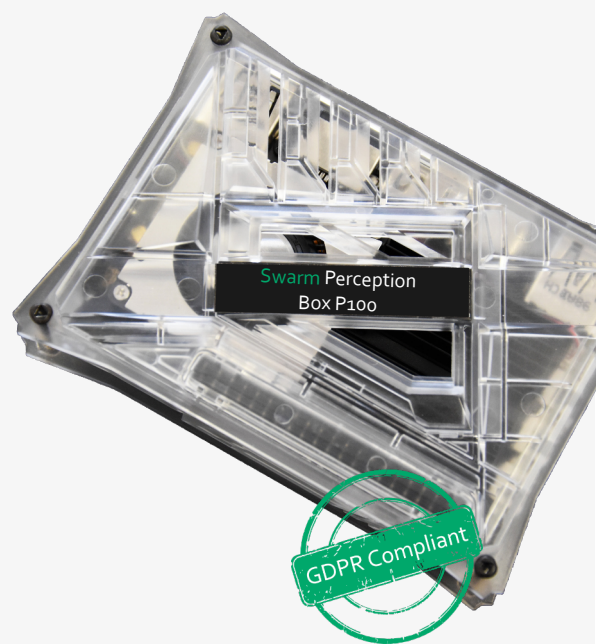# SWARM ANALYTICS

# Swarm Perception Box P100

## The Plug & Play Brain for The Camera

The Swarm Perception Box is built to deliver highly optimized computer vision algorithms within a small & compact form-factor. This ensures real-time delivery of information with simplicity, reliability, and affordability in mind.

Swarm Perception Box combines a complete configurable event-driven messaging engine, powerful out-of-the-box use cases, and simple centralized management for hundreds or thousands of Swarm Perception Boxes. Zero-touch hardware deployment and native cloud integration for centralized device management get you up and running instantly.

### Edge Computing Based

The Swarm Perception Box is built to be independent of backend computational hardware and computes all arriving video-streams locally. This keeps the operational costs low and efficiency high, due to the non-existing data-transfers of the expensive image or video information to the cloud — only results will be transferred within a standardized stream of JSON messages.

### Privacy By Design

Due to the local computing, no image or video data will leave the system or can be reconstructed after its computation. Also, the operational concept is built to be in your full ownership and utilizes your own cloud environment — this ensures full GDPR compliance. We put YOU in the driver seat of YOUR data.

### Easy To Configure

The overall operational concept is built around a true Plug & Play strategy. From the cloud-based Swarm Control Center, you can easily configure all your Swarm Perception Boxes, ensure the latest object recognition algorithms are running with 1-click and control the data flow through native implemented protocols, such as MQTT in your data ecosystem.

# Solutions

## Urban Traffic

– Class-based traffic counting & speed estimation
– Traffic flow heat maps
– Origin-destination matrices
– Measurement of queue length

## Public Transport

– Counting of people in vehicles & at stations
– Monitoring of occupancy & capacity status
– Measurement of waiting times

## Parking

– Single-space monitoring of occupancy
– Multi-space & area-based counting of parking vehicles
– Classification of parking vehicles
– Entry & exit counting
– Measurement of parking time

## Retail

– People counting
– People flow heat maps
– Origin-destination matrices
– Measurement of queue length & waiting times
– Gender & age classification
– Measurement of average time spent in certain areas

## Smart Building
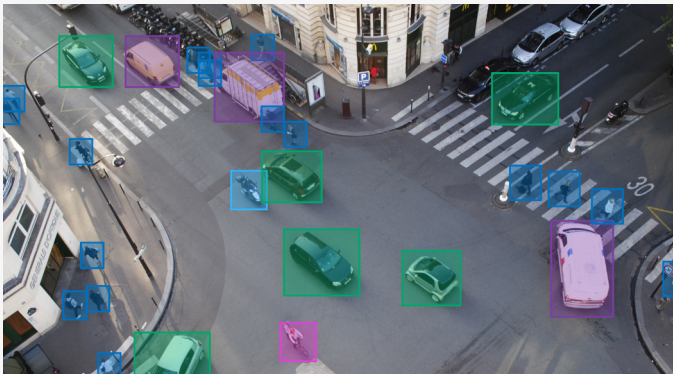
– People counting
– People flow heat maps
– Origin-destination matrices
– Entry & exit counting
– Measurement of room utilization & capacity status



Class-based traffic counting in Urban Traffic

The Swarm Control Center allows centralized management of hundreds or thousands devices via a simple to use web application



| Swarm Control Center powered by Swarm Analytics | | | | | Username - Admin |
|---|---|---|---|---|---|
| **Name/ID** ⌄ | Operation Mode | Software/Model | Connection | Configuration | |
| **Unnamed Device** ID: b7aed...dadab | ⓘ Not defined | v.1.0.0 P100 | 🛜 Online | | |
| **Unnamed Device** ID: b7aed...dadab | ⓘ Not defined | v.1.0.0 P100 | 🛜 Online | | |
| **Unnamed Device** ID: b7aed...dadab | ⓘ Not defined | v.1.0.0 P100 | 🛜 Online | | |
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| **Unnamed Device** ID: b7aed...dadab | ⓘ Not defined | v.1.0.0 P100 | 🛜 Online | | |

## Central management via Swarm Control Center

– Administration & configuration for unlimited Swarm Perception Boxes
– Support for multi-tenancy
– Central life cycle management
– Role-based operator assignments
– Group-based device management
– Zero-touch deployment

# Technical Specs

| | Swarm Perception Box P100 |
|---|---|
| **Management Features** | |
| Swarm Control Center | Included |
| **Pre-installed Trained Models** | |
| Urban Traffic | ✓ |
| Parking | ✓ |
| Public Transport | ✓ |
| Retail | ✓ |
| Smart Building | ✓ |
| **Camera Requirements** | |
| Protocols | RTSP (over IP) |
| Resolutions | 720 p (= 1280 × 720 pixels) |
| Picture Format | 4:3, 16:9, 360° Fisheye |
| **Performance** | |
| Number of Parallel, Processable Videos Streams | 1 × |
| Number of Parallel, Active Solutions | 1 × |
| **Connectivity and Data Transfer** | |
| IP Connectivity | DHCP |
| Data Streaming Protocols | MQTT, AMQP |
| Data Encoding | JSON |
| Data Sampling and Accumulation | 100 ms – 30 min |
| Typical Data Transfer | < 100 MB / month |
| **Hardware** | |
| Form Factor | Compact, DIN rail |
| Size | 96.5 × 70.0 × 23.5 mm (without DIN rail) |
| Weight | 135 gramms (without DIN rail) <br> 172 gramms (with DIN rail) |
| Power Supply | External, USB-C |
| Power Consumption | < 10 W |
| Gigabit Ethernet | 1 |
| Wi-Fi | ✓ |
| Operational Temperature | -20 °C to + 70 °C |
| Mobile Internet (LTE/GSM) | Not built in |
| **Software Maintenance / Hardware Support** | |
| Advanced Replacement | Included, next business day shipping |
| Software Updates | All software updates and upgrades included |
| **Software provision and payment** | |
| Swarm Control Center | Included |
| Azure Cloud | Mandatory use <br> Costs depend on use and have to be paid by yourself |

Specifications subject to change without notice. Please go to website for most current version.

## Support Options

Choose between standard and premium support based on your needs. For more questions regarding our support plans, please contact our qualified key account team which will guide you through the available offers via
sales@swarm-analytics.com

## For more information or to purchase Swarm Analytics Products

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✉ sales@swarm-analytics.com

📞 +43 664 8250762