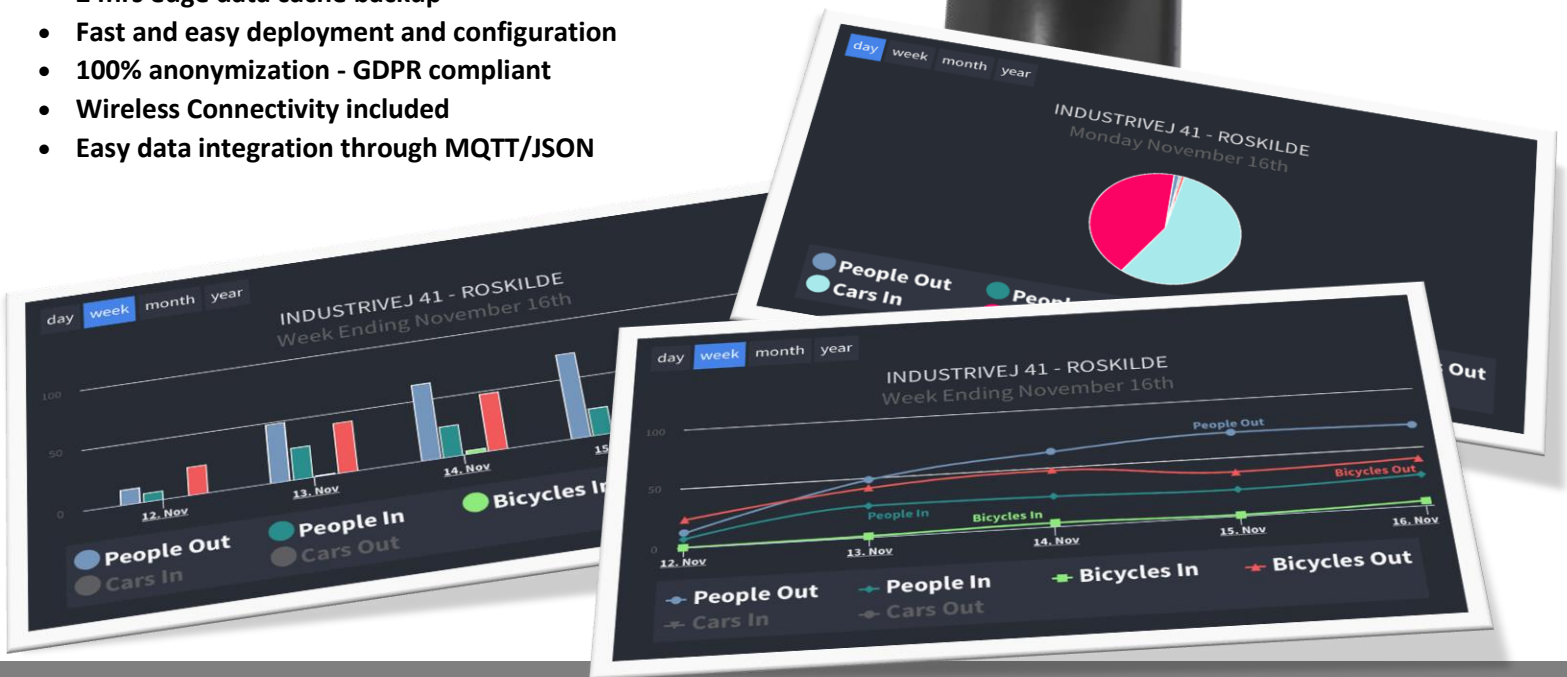


## HIVE+ TRAFFIC SENSOR

TRAFFIC DATA AS A SERVICE WITH ALL-IN-ONE VISUAL AI/IoT SENSOR FOR CONTINUOUS DATA COLLECTION

- Reliable traffic data collection for streets, roads, intersections, parking, and public spaces
- 24/7/365 traffic counting (Pedestrians, Bicycles, Cars, Motorcycles, Trucks, Busses).
- People gathering detection.
- >96% accuracy in all conditions
- Real-time or aggregated data transmission modes
- 24hrs edge data cache backup
- Fast and easy deployment and configuration
- 100% anonymization - GDPR compliant
- Wireless Connectivity included
- Easy data integration through MQTT/JSON



Collecting reliable, continuous, and affordable traffic data for analysis of changes in volumes, modes and patterns is today essential for a range of Smart City and mobility planning purposes: bicycle conversion projects, road construction planning, pre/post implementation analysis, traffic safety campaigns, health/security monitoring, tourism advancement, retail tracking, parking space efficiency and much more.

To achieve exactly that, HIVE+ Traffic Sensor is designed with a unique and future proof combination of Visual AI and IoT technology. This enables real-time analysis of a video stream for multimodal traffic counting as well as cost efficient transmission back to your analysis platform.

Next to that, the integrated camera, processor, and power source in a single lightweight unit, increase flexibility and installation speed greatly, while reducing both installation and maintenance costs.

Finally, since only the detected anonymous data is transmitted, full anonymity and 100% GDPR compliance is secured.

## VISUAL AI EDGE SENSOR FOR ANONYMOUS DETECTION



1

The visual sensor of HIVE+ Traffic Sensor captures a continuous video image of the traffic detection area of interest.

The wide angle, fixed focus camera and rotation/tilt system makes image setting fast and easy for installers. The inbuilt IR functionality ensures counting during day and night.

2

The edge processor driven AI of HIVE+ Traffic Sensor recognizes type and direction for of all transport modes in the captured video image.

Each detected traffic element is tracked while it is in the image and is counted and accumulated to any of the following counting modes created in the image: In/Out Counting Line, Counting Zone, Virtual Door etc.

3

The real-time or accumulated data output (quantity of registered traffic objects only) from the image analysis is transmitted via wireless network connection directly to **Felicity Connect**, our included cloud hosted IoT platform and traffic dashboard display – or to **your own private cloud apps via JSON/MQTT** format for your own further processing and analysis.



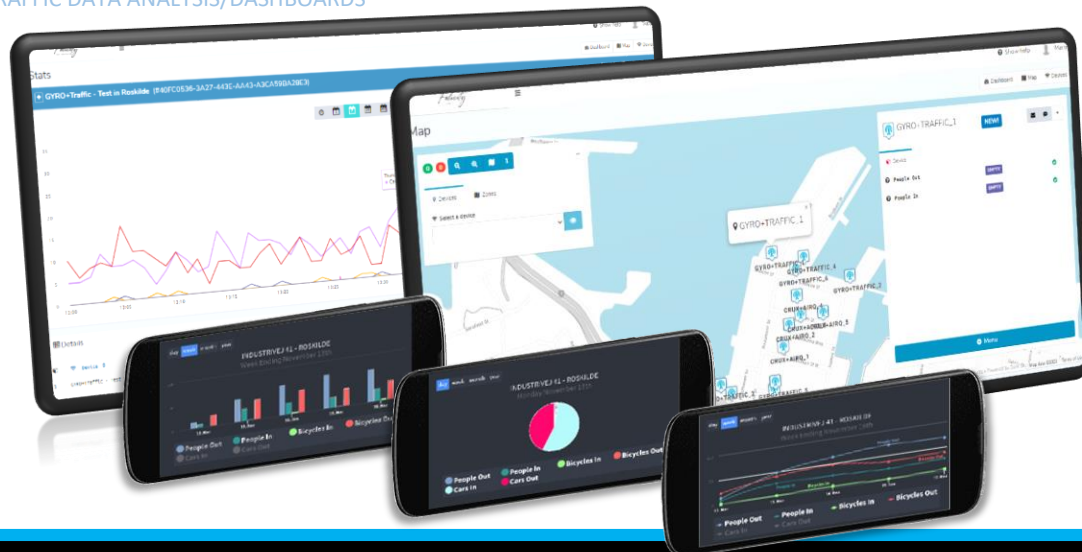
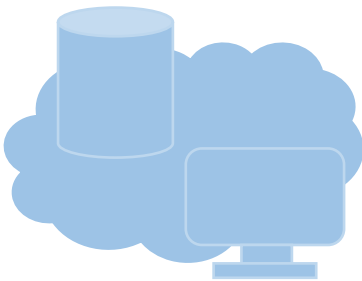
WIRELESS TRAFFIC/MANAGEMENT DATA

WIRELESS TRAFFIC DATA

YOUR OWN DATA PLATFORM  
JSON/MQTT INTEGRATION

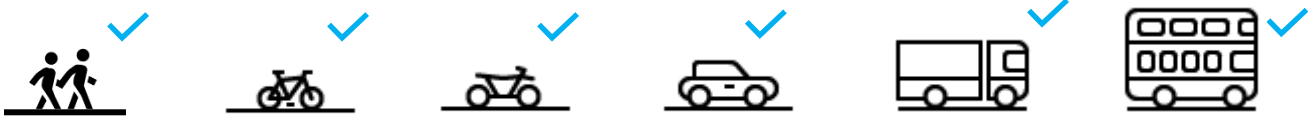
FELICITY CONNECT  
DEVICE/CONFIGURATION MANGAMENT  
TRAFFIC DATA ANALYSIS/DASHBOARDS

[TRY OUR LIVE DASHBOARD DEMO HERE](#)



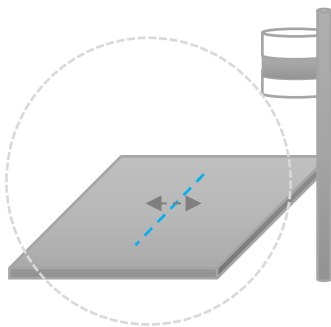
## TRAFFIC OBJECT DETECTION

The integrated processor and AI application of HIVE+ Traffic Sensor is trained to detect, differentiate, and track traffic objects in a live video stream. As such, a full range of different traffic modes can be detected: Pedestrians, Bicycles, Motorcycles, Cars, Trucks, Busses.



## COUNTING MODES, SCENARIOS AND COLLECTED DATA

To cover any data collection need you may have, HIVE+ Traffic Sensor offers several counting modes that can be used and combined for many different application scenarios:



### Counting Line mode

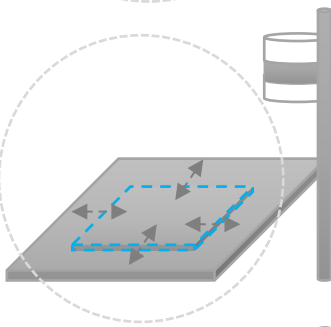
The Counting Line registers and counts all traffic objects in both directions that cross a defined virtual line, ideally located on the horizontal plane, in the video image.

### Application Scenarios

- Pedestrian Crossing
- Parking Entry/Exit
- Traffic Lanes/Bicycle Lanes/Sidewalks

### Collected Data

- Traffic Type/Qty
- Time Stamp
- Direction (In/Out)



### Counting Zone mode

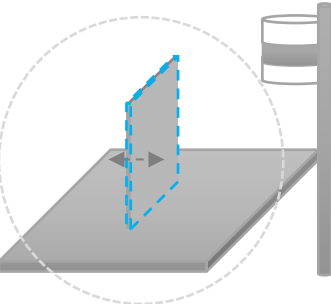
The Counting Zone registers and counts the traffic objects that enters or exits a defined zone/space in the video image.

### Application Scenarios

- Crowd gathering detection.
- Lines and Ques tracking
- Parking spot occupancy
- Road Intersections (Origination/Destination)

### Collected Data

- Traffic Type/Qty.
- Time Stamp
- Dwell Time
- Direction (OD)



### Counting Door mode

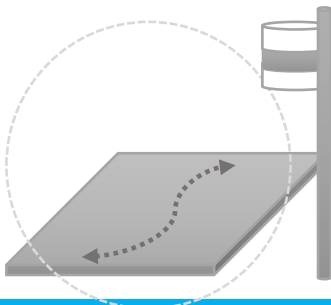
The Counting Door registers and counts traffic objects that enters or exits a defined 3D virtual door, ideally located in the vertical plane in the video image.

### Application Scenarios

- Person Entry/Exit count of buildings/shops
- Car Entry/Exit count of cars in parking houses, carwash, ferry/train dis-/embarking.
- Indoor/Retail scenarios

### Collected Data

- Traffic Type/Qty.
- Time Stamp
- Direction (In/Out)



### Object Path mode

The Object Path mode detect and track the path of a traffic object as it travels through the video image.

### Application Scenarios

- Crowd gathering detection.
- Lines and Ques tracking

### Collected Data

- Traffic Type/Qty
- Time Stamp
- Object Size
- X, Y coordinates



## HIVE+ TRAFFIC SENSOR

- MAKING CONTINUOUS TRAFFIC DATA COLLECTION COUNT

### TRACK THE CONTINUOUS IMPACT AND EFFECT OF YOUR BICYCLE PROMOTION EFFORTS

Cities across the world recognize the vast potential in CO2 emission savings, and improvement of urban mobility by increasing the use of bicycles in everyday commuting. As a result, campaigns, promotions, and infrastructure investments are today a smart city priority. With HIVE+ Traffic Sensor a continuous and complete data set for all bicycle traffic fluctuations across all seasons, weather days and time of day can be achieved in a reliable and cost-efficient manner.



### INCREASE HEALTH AND SAFETY WITH DETECTION OF CROWD SIZES AND DENSITY

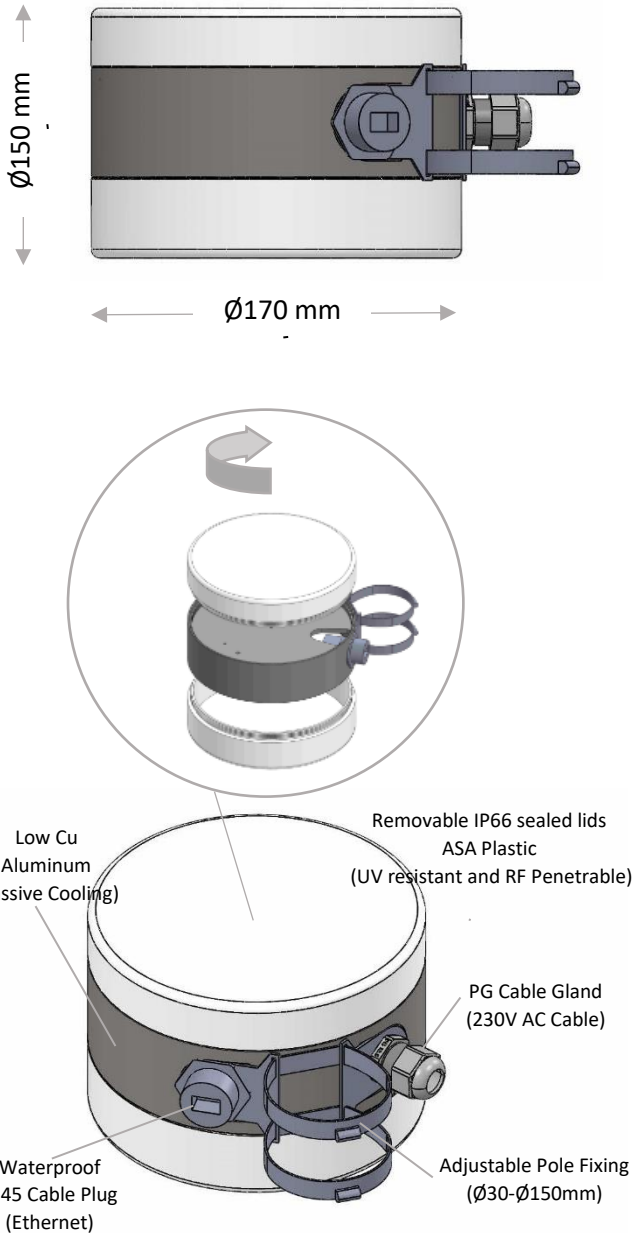
Whether the aim is to collect pedestrian traffic information for retailers and city planners, or to detect and warn of critical crowd instances, the HIVE+ Traffic Sensor will provide continuous valuable data insight, crowd size estimation and density information for increased safety.

### MISSION CRITICAL SMART CITY MOBILITY STARTS WITH DETAILED TRAFFIC DATA INSIGHT

When analyzing and planning new improvements for roads, intersections, and other critical traffic infrastructures, a detailed and constant data collection provides invaluable insights during, planning, implementation, and post evaluations. HIVE+ Traffic Sensor enables cost efficient and reliable data collection.



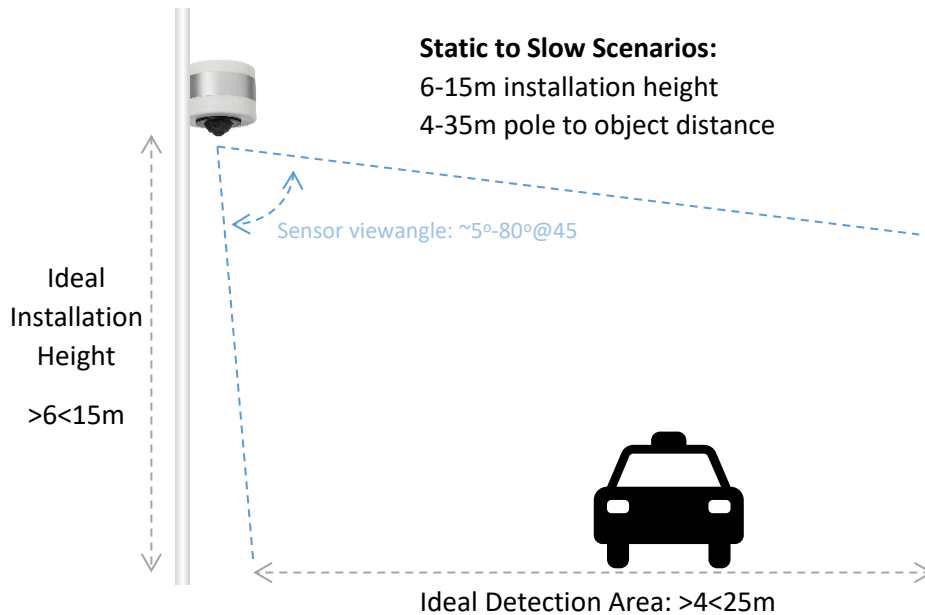
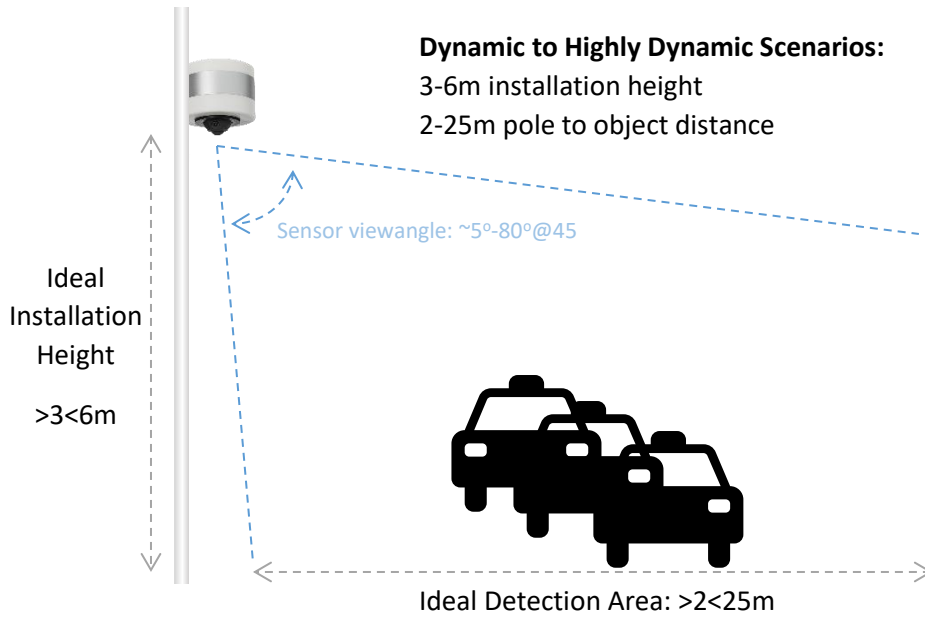
## HIVE+ TRAFFIC SENSOR - PRODUCT DATA



VISUAL SENSOR	IP Camera 3MP 3,6mm lens IR night mode Fixed focus 20 FPS
PROCESSOR	Essential: Khadas WIM3 Advanced: NVIDIA Jetson TX2
CONNECTIVITY OPTIONS	Cellular wireless IoT connectivity included
POWER CONSUMPTION	7-10W
POWER SUPPLY	100-240 VAC
COLOR	White/Grey
BODY PARTS MATERIAL	Aluminium /ASA
ISOLATION CLASS	CLASS II
SURGE PROTECTION	(SetFuse SD10C277LM) Max Surge Current: 15kA – with fault indicator (LED)
INGRESS PROTECTION	IP66
WIND LOAD FACTOR	<0.003m2
IMPACT PROTECTION	IK8
WEIGHT	700g
OPERATING TEMPERATURE	-20°C /+50°C

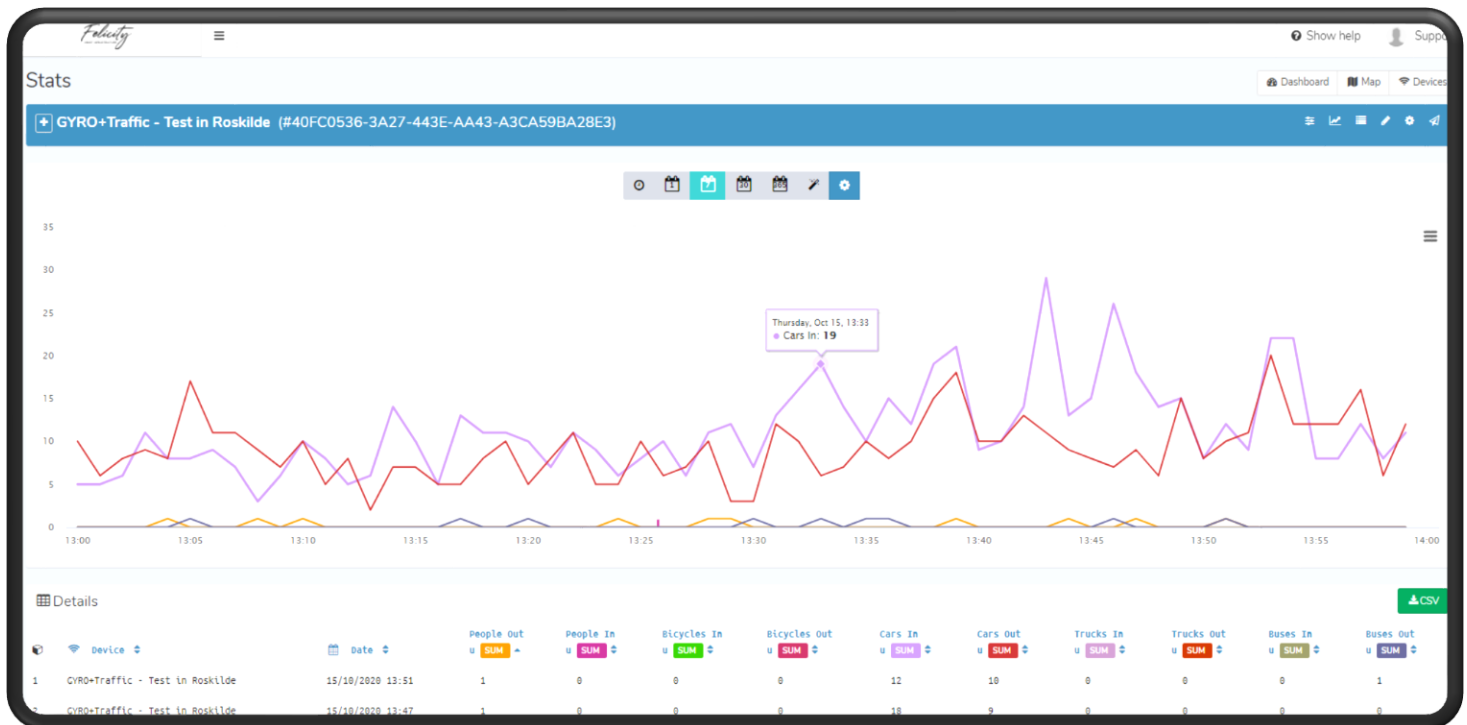
HIVE+ is a versatile pole mounted outdoor enclosure for Smart City equipment. HIVE's timeless and contemporary design elegantly facilitates the install and integration of a wide range of off-the-shelf smart equipment such as Edge Processors, LPWAN Gateways, Cameras, Sensors, Modems, and combinations thereof. As such HIVE+ enables a streamlined and consistent architectural deployment of Smart City elements without additional junction boxes, battery enclosures, wires, antennas etc.

## HIVE+ TRAFFIC SENSOR – INSTALLATION/SENSOR RANGE



## HIVE+ TRAFFIC SENSOR – TRAFFIC DATA AS A SERVICE

	HIVE+ Traffic Sensor Essential Static/Dynamic Scenarios	HIVE+ Traffic Sensor Advanced Highly Dynamic Scenarios
HIVE+ Traffic Sensor	YES	YES
Felicity Connect -Data Dashboard	YES	YES
Felicity Connect -Device Management Dashboard	YES	YES
2 hours free sensor configuration assistance	YES	YES
24/7 Remote Operational Monitoring	YES	YES
3G/LTE Wireless Data Connectivity 2 min. Accumulation/Transmission Interval	YES	YES
3G/LTE Wireless Data Connectivity Realtime Transmission Interval	NO	YES
Replacement/return service	YES	YES
<b>Monthly Fee/Sensor</b> Payable annually in advance 2 yrs. min. subscription period	149,00 USD	Contact us for price



With Traffic Data as a Service you will get a complete end-to-end hardware and software solution for continuous traffic data collection that is operational immediately. Once you have installed the HIVE+ Traffic Sensor, it will automatically connect and we will configure the Counting modes in the captured image as per your request. The collected data will be available for your immediate review and use on our Felicity Cloud application or in your own integration. Felicity will monitor and control the operation of the sensor on your behalf 24/7 and well – this includes predefined on/off schedules and SMS/email alerts generation both for defined data thresholds and alarms for operational issues.



Contact us today and find out more:



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