TRAFISENSE AI™

AI-Powered Thermal Traffic Sensor

Designed to reliably detect and classify road users, TrafiSense AI is an intelligent thermal imaging sensor for traffic monitoring in complex urban environments. Featuring AI algorithms built on 25+ years of traffic detection and best-in-class thermal imaging, TrafiSense AI delivers continuous vision and data collection for safer, more efficient cities. Capable of tracking multiple objects in any lighting condition, the advanced edge-based AI technology effectively controls intersections, helps protect vulnerable road users, and gathers detailed traffic data for better city planning decisions.

DETECTION BASED ON AI

EFFECTIVE SIGNAL CONTROL

HIGH RESOLUTION DATA

TRAFFIC PREDICTION

WI-FI BASED TRAVEL TIME MONITORING

EASY-TO-INSTALL

UNMATCHED DETECTION AND CONTROL

Edge-based AI and 24/7 thermal detection offer advanced intersection control that outperforms other technologies

- Thermal imaging helps provide reliable detection in complete darkness, glaring sunlight, and challenging weather conditions
- Detect the position, speed, and heading of vehicles and vulnerable road users such as bicyclists and pedestrians
- Directly integrate with traffic controllers through accurate virtual loop configuration and dry contacts
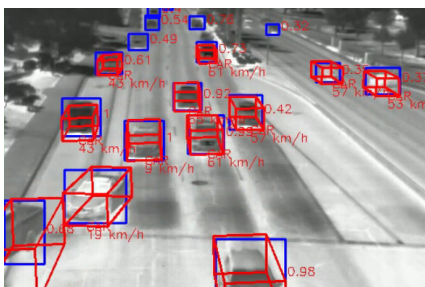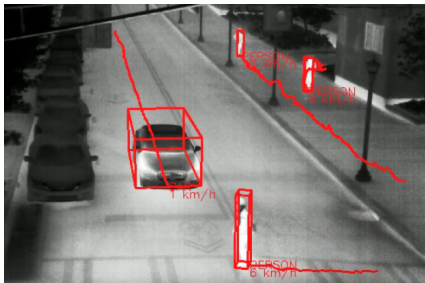
FUTUREPROOF TRAFFIC INSIGHT

TrafiSense AI captures advanced and high-resolution traffic data for better-informed city planning decisions

- Collect vehicles and vulnerable road users and measure traffic volume, speed, and occupancy
- Gather valuable data, including vehicle trajectories throughout intersections
- Provides real-time integration over APIs for adaptive and predictive traffic systems
- Provides information about the Situational Awareness

COMPREHENSIVE REPORTING

Generate automated reports with Acyclica to identify bottlenecks

- Determine the turning movement count per vehicle class at intersections throughout the day
- Create heatmaps with TrafiSense AI data to pinpoint areas with potential safety issues
- Streamlined data visualization creates easy-to-read, compelling reasoning for city planning adjustments
- Measures travel and delay time on intersections (provides ATSPM Purdue diagram)

For more information, please visit:
www.flir.com/trafisense-ai

TRAFISENSE AI

System Overview

Functionalities	Conditional presence detection by class Traffic Data Collection incl. conditional turning movement counts Queue Length Monitoring PSH (Position, Speed and Heading) over API - optional license Wrong Way Driver Detection - optional license
Services	FLIR VSO data - optional Acyclica license Modules (Reporting Module, Planning Module, Signal Timing Tools) - optional Acyclica licenses Wi-Fi Travel Time analytics - optional Acyclica license[1]
Preset Applications	32 Zones are available for the following applications: - Presence - Counting Group - Queue Occupancy - Bicycle Presence - Pedestrian Presence - Custom application
Configuration	Local/remote web page setup via PoE, Wi-Fi[1] or BPL

Imaging & Optical

Type	Focal Plane Array (FPA) Uncooled VOx microbolometer Long wave Infrared (7 – 14 µm)
Resolution	VGA (640 × 480)
Frame Rate	30 fps
Compression	H.264, H.265, MJPEG
Streaming Video	RTSP

Product Types

	Part Number (Wi-Fi)	Part Number (Non Wi-Fi)	Field of View	Detection Distance for Vehicle Presence
TrafiSense AI - 690	10-7750	10-7751	90°H × 69°V	0 to 54.8 m (0 to 180 ft)
TrafiSense AI - 645	10-7754	10-7755	44°H × 35°V	10.1 to 74.7 m (33 to 245 ft)
TrafiSense AI - 632	10-7756	10-7757	32°H × 26°V	19.8 to 121.9 m (65 to 400 ft)

Mechanical

Material	Aluminum housing with integrated polycarbonate sunshield
Dimensions (incl. mounting bracket)	Vertically mounted: 24.8 × 16.0 × 11.9 cm (9.8 × 6.3 × 4.7 in) Horizontally mounted: 41.1 × 18.0 × 11.9 cm (16.2 × 7.1 × 4.7 in)

Electrical

Input power	24-42 VAC / 24-48 VDC
Power consumption	Avg 10.5 W / Peak 15 W

Communication

Output contacts	- Hard wired: 4 N/C onboard + maximum 5x N/C via 4I/O USB expension boards (so maximum 24 outputs in total) - SDLC: BIU - 64 or SUI - 128
PoE	PoE mode A for configuration, video streaming and data communication
BPL	80 Mbps Broadband over Powerline communication via TI BPL3 Edge interface
Wi-Fi	IEEE 802.11 type b.g.n. EIRP < 100 mW [1]

Environmental

Shock & Vibration	NEMA TS2 specs
Materials	All weatherproof UV resistant
IP Rating	IP67
Temperature Range	-34°C to 74°C (-29°F to 165°F)

Regulatory

FCC / EU Directives	FCC part 15 class A, EMC 2014/30/EU RoHS 2011/65/EU, LVD 2014/35/EU

For the latest specification, please visit www.teledyneflir.com

[1] Only Wi-Fi version