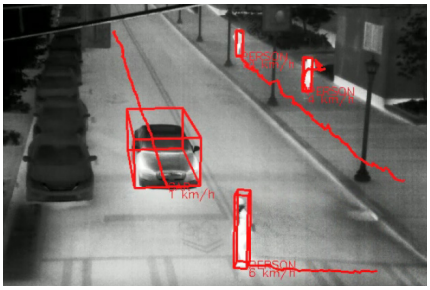
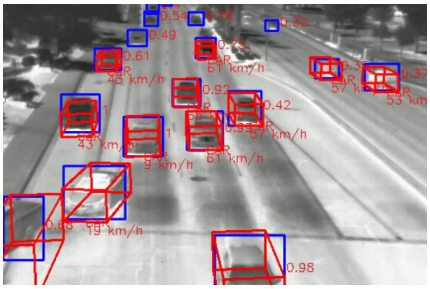
# TRAFISENSE AI™

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)

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

**www.teledyneflir.com**


23-1068-ITS-TrafiSense-AI-USL

## TRAFISENSE AI

| | | | | |
|---|---|---|---|---|
| **System Overview** | | | | |
| Functionalities | Conditional presence detection by class<br>Traffic Data Collection incl. conditional turning movement counts<br>Queue Length Monitoring<br>PSH (Position, Speed and Heading) over API - optional license<br>Wrong Way Driver Detection - optional license | | | |
| Services | FLIR VSO data - optional Acyclica license<br>Modules (Reporting Module, Planning Module, Signal Timing Tools) - optional Acyclica licenses<br>Wi-Fi Travel Time analytics - optional Acyclica license[1] | | | |
| Preset Applications | 32 Zones are available for the following applications:<br>- Presence<br>- Counting Group<br>- Queue Occupancy<br>- Bicycle Presence<br>- Pedestrian Presence<br>- Custom application | | | |
| Configuration | Local/remote web page setup via PoE, Wi-Fi[1] or BPL | | | |
| **Imaging & Optical** | | | | |
| Type | Focal Plane Array (FPA)<br>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)<br>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)<br>- 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<br>RoHS 2011/65/EU, LVD 2014/35/EU | | | |

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

[1] Only Wi-Fi version

# TRAFICAM AI™

## AI-Powered HD Traffic Sensor

Designed to reliably detect and classify road users, the TrafiCam AI is an intelligent HD visible sensor for traffic monitoring in complex urban environments. Featuring a low-light HD visible camera and AI algorithms built on 25+ years of traffic detection, TrafiCam AI offers detailed vision and data collection for safer, more efficient cities. Capable of tracking multiple objects in any lighting or weather conditions; therefore, thermal is specifically used for safety-critical applications. The advanced edge-based AI technology effectively controls intersections and gathers detailed traffic data allowing you to make better city planning decisions.

**DETECTION BASED ON AI**
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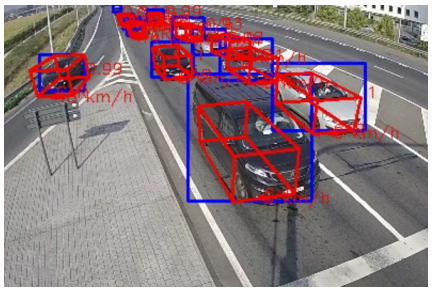

### PRECISE DETECTION AND CONTROL

Edge-based AI and Full HD imaging offer advanced intersection control that outperforms other signal control technologies

- Low light visual HD camera provides reliable vehicle detection at night and in challenging weather conditions
- Detect the position, speed and heading of vehicles in any direction
- Directly integrate with traffic controllers through accurate virtual loop configuration and dry contacts

### FUTUREPROOF TRAFFIC INSIGHT

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

- Automatically detect and classify road users and vehicle types into a wide range of subcategories
- 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
- Measure travel & delay time between intersections *1
- Streamlined data visualization creates easy-to-read, compelling reasoning for city planning adjustments

For technical or sales support, please visit:
www.flir.com/about/general-inquiries



Revised March 25, 2024
Traficam-AI-Datasheet-LTR-24-0164-ITS

## SPECIFICATIONS

| | | | | |
|---|---|---|---|---|
| **System Overview** | | | | |
| Functionalities | Conditional vehicle presence for each class<br>Traffic data & flow monitoring<br>Turning Movement Count<br>Queue Occupancy<br>Wrong way drivers<br>PSH (Position,Speed & Heading) - optional API License<br>ETA (Estimated Time of Arrival) | | | |
| Services | FLIR VSO data - optional Acyclica license<br>Wi-Fi Travel Time analytics - optional Acyclica license* | | | |
| Configuration | Local/remote web page setup via PoE, Wi-Fi* or BPL | | | |
| **Imaging & Optical** | | | | |
| Type | CMOS Type 1/2.8 color High Dynamic Range | | | |
| Resolution | Full HD (1920 × 1080) | | | |
| Frame Rate | 25 fps | | | |
| Compression | H.264, MJPEG , H.265 | | | |
| Streaming Video | RTSP | | | |
| **Product Types** | | | | |
| | Part Number (Wi-Fi) | Part Number (Non Wi-Fi) | Focal Distance | Detection Distance for Vehicle Presence |
| TrafiCam AI - Wide | 10-7710 | 10-7711 | 2.8 mm | 0 - 75 m / 0 - 250 ft |
| TrafiCam AI - Narrow | 10-7715 | 10-7716 | 8.0 mm | 75 - 150 m / 250 - 500 ft |
| **Mechanical** | | | | |
| Material | Aluminum housing with integrated polycarbonate sunshield | | | |
| Dimensions (incl. mounting bracket) | Vertically mounted: 45 cm × 16 cm × 12 cm / 9.8 in × 6.3 in × 4.7 in<br>Horizontally mounted: 41 cm × 18 cm × 12 cm / 16.2 in × 7.1 in × 4.7 in | | | |
| **Electrical** | | | | |
| Input power | 24-42 VAC / 24-48 VDC | | | |
| Power consumption | Avg 9.5 W / Peak 14 W | | | |
| **Communication** | | | | |
| Output contacts | ROW<br>- 1 N/O and 1 N/C dry contact direct<br>- 16 N/C dry contacts via TI BPL3 interface | | USA<br>- Hard wired: 4 N/C onboard + maximum 5x N/C via 4I/O USB expansion boards (maximum 24 outputs total)<br>- 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* | | | |
| **Environmental** | | | | |
| Shock & Vibration | NEMA TS2 specs | | | |
| Materials | All weatherproof UV resistant | | | |
| IP Rating | IP 67 | | | |
| Temperature Range | -34°C to 74°C | | | |
| **Regulatory** | | | | |
| FCC / EU Directives | FCC part 15 class A, EMC 2014/30/EU<br>RoHS 2011/65/EU, LVD 2014/35/EU | | | |

Specifications are subject to change without notice. For the most up-to-date specs, go to www.teledyneflir.com

*Only Wi-Fi version

For technical or sales support, please visit:
www.flir.com/about/general-inquiries



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Traficam-AI-Datasheet-LTR-24-0164-ITS

# FLIR TrafiCam™ 3

Smart City Sensor

www.flir.com/products/TrafiCam3

## Key Features

- Adapts traffic signals based on visual camera detection of vehicles
- Monitors MAC addresses of Wi-Fi-enabled devices such as smart phones to determine rates of travel along segments
- Generates basic count data at intersections and in urban environments
- Mounts quickly and integrates with existing platforms through BPL technology or PoE connection

## Main Applications

- Improves dynamic control of traffic signals with stop bar and advanced presence detection
- Integrates easily and features non-intrusive, above-ground installation
- Transmits detection output via dry contact outputs or TCP/IP network communication

## SPECIFICATIONS

| System Overview | |
|---|---|
| Functionalities | Vehicle presence |
| Detection zones | 8 vehicle presence zones |
| Detection distance | 0–25 m/0–85 ft (wide variant)<br>15– 75 m/50– 250 ft (narrow variant) |
| Configuration | Web page via secure Wi-Fi or Ethernet |
| Installation height | 3.5–6 m/11.4–19.6 ft (wide variant)<br>5.5–8 m/18.0–26.0 ft (narrow variant) |
| **Visual Sensor** | |
| Resolution | 640 × 480 pixel, color CMOS |
| Frame rate | 15 fps |
| Lens HFOV | 90° (wide variant) or 32° (narrow variant) |
| Streaming video | RTSP |
| Compression | H.264, MPEG-4, MJPEG |
| **Housing** | |
| Material | Aluminum housing with PC GF10 sunshield |
| Bracket | PA GF30 mounting clamps and aluminum tube |
| **Power, Outputs, & Communication** | |
| Input power | 12 – 42 V AC<br>12 – 48 V DC |
| Power consumption | Average 6.2 W, peak 7 W, peak with powerdip 14 W |
| Outputs | 1 N/O and 1 N/C dry contacts direct<br>16 N/C dry contacts via TI BPL3, TI SLT or 4 N/C via BPL3 Edge B&SIU onboard + maximum 5x N/C via 4I/O USB expansion boards (max. total 24 outputs)<br>SDLC: BIU–64 or SUI–128 |
| Ethernet PoE | 10/100 MBps PoE A and PoE B |
| Powerline communication | Via TI BPL3 or TI BPL3 EDGE interface |
| Wi-Fi | IEEE 802.11 type b,g,n EIRP <100 mW |
| Network communication | JSON API |
| **Environmental** | |
| Shock and vibration | NEMA TS2 specs |
| Materials | All weatherproof UV-resistant |
| IP rating | IP67 |
| Temperature range | -40°C to 74°C (-40°F to 165°F) |
| FCC | FCC part 15 class B |
| **Regulatory** | |
| EU directives | EMC 2014/30/EU, RoHS 2011/65/EU |
| **General** | |
| Dimensions (L × W × H) | 70 × 200 × 440 mm / 2.75 × 7.87 × 17.32 in. (camera with bracket) |
| Weight | 850 g / 1.87 lb. (camera with bracket) |

| Model | Description |
|---|---|
| 10-8000 | TrafiCam 3 Wide |
| 10-8005 | TrafiCam 3 Narrow |

For more information about FLIR TrafiCam 3, please scan or visit:

*Specifications subject to change. For the most up-to-date specifications, please visit flir.com.*

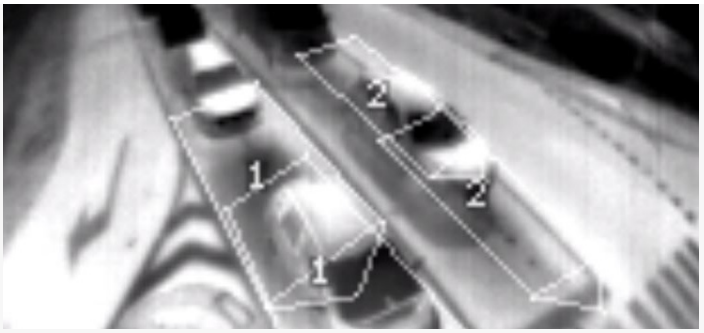
For technical or sales support, please visit:
www.flir.com/about/general-inquiries

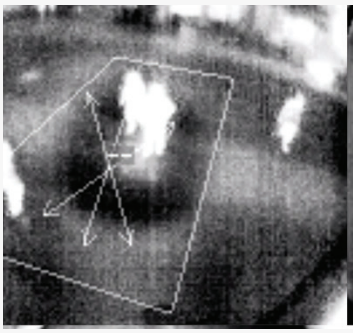


Revised 06/16/25 FLIR-TrafiCam-3 Datasheet-en-US-LTR RH 25-0123-ITS

# TRAFIONE

Smart City Sensor




TrafiOne is an all-round detection sensor for traffic monitoring and dynamic traffic signal control. Offered in a compact and affordable package, the TrafiOne uses thermal imaging and Wi-Fi technology to adapt traffic signals based on the presence detection of vehicles, bicycles and pedestrians, while also generating high resolution data at intersections and in urban environments. As a result, TrafiOne helps traffic engineers improve traffic flows, monitor congestion, enhance safety for vehicles and vulnerable road users, collect data, and measure travel and delay times for different transport modes.

www.flir.com/Traffic

## THERMAL IMAGING SENSOR

TrafiOne allows for more dynamic control of traffic signals, 24/7

- Sees traffic in total darkness, through shadows and sun glare
- Detects the presence of vehicles and bicyclists at the stopbar
- Detects pedestrians and bicyclists in the crossing or on the curb
- Connects to traffic signal controller via dry contact outputs or TCP/IP network communication

## WI-FI TECHNOLOGY

Secure wireless communication allows for quick and easy configuration of detection zones

- Monitors Mac addresses of Wi-Fi enabled devices, such as smartphones
- Determines travel and route times along road segments
- Measures queue delay times at intersections via Wi-Fi signal strength

## FLIR ITS-IQ

TrafiOne information is processed using cloudbased data analysis.

- FLIR ITS-IQ provides critical understanding or road network performance
- Smart analytics transform information into useful traffic insights
- User-friendly dashboard lets traffic engineers generate reports and take measures, when needed

## SPECIFICATIONS

| System Overview | |
|---|---|
| Functionalities | Curbside and on-crossing pedestrian and bicycle presence detection<br>Stopbar vehicle and bicycle presence detection<br>Visual HD streaming video (optional license)<br>Wi-Fi monitoring (optional license)<br>Pedestrian counting (optional license) |
| Number of detection zones | 8 vehicle presence zones<br>8 pedestrian presence zones |
| Configuration | Web page via secure Wi-Fi or Ethernet |
| **Thermal Sensor** | |
| Resolution | 160 × 120 pixels |
| Frame rate | 9 FPS |
| Detector type | Focal Plane Array (FPA) uncooled VOx microbolometer LWIR sensor, 8–14 µm wavelength |
| Streaming video | RTSP |
| Compression | H.264, MPEG-4 |
| **Visual Sensor** | |
| Resolution | 1080 × 1920 pixel HD color CMOS |
| Frame rate | 30 fps |
| Lens HFOV | 95° |
| Streaming video | RTSP |
| Compression | h.264, MPEG-4, MJPEG |
| **Housing** | |
| Material | Aluminum housing with PC GF10 sunshield |
| Bracket | PA GF30 mounting clamps and aluminum tube |
| **Power, Outputs, & Communication** | |
| Input power | 12 – 42 V AC/DC |
| Power consumption | Average 6 W, peak 7 W |
| Outputs | 1 N/O and 1 N/C dry contacts direct<br>16 N/C dry contacts via TI BPL2 or TI BPL2 EDGE interface |
| Ethernet | 10/100 MBps |
| PoE | PoE A and PoE B |
| Powerline Communication | Up to 2 MBps via TI BPL2 or TI BPL2 EDGE interface |
| Wi-Fi | IEEE 802.11 type b,g,n EIRP <100 mW |

| Environmental | |
|---|---|
| Shock and Vibration | NEMA TS2 specs |
| Materials | All weatherproof UV-resistant |
| IP Rating | IP67 |
| Temperature range | -40°C to 60°C (-40°F to 140°F) |
| FCC | FCC part 15 class A |
| **Regulatory** | |
| EU Directives | EMC 2014/30/EU, RoHS 2011/65/EU |

| Product-specific | TrafiOne 195 | TrafiOne 156 |
|---|---|---|
| Part number | 10-7070 | 10-7075 |
| HFOV | 95° | 56° |
| Detection distance (depending on installation height) | Stop-Bar Detection*: 0–15 m (0–49.2 ft)<br>Pedestrian & bicycle presence: 0–12 m (0–39 ft) | Stop-Bar Detection*: 10–25 m (33–82 ft)<br>Pedestrian & bicycle presence: 10–20 m (33–65.5 ft) |
| Installation height | 3.5–6 m (11.4–19.6 ft) | 5.5–8 m (18–26 ft) |

*recommended for 2 lanes only

Specifications are subject to change without notice.
For the most up-to-date specs, go to www.teledyneflir.com

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