

# Tailgate Detector

## TDflex™ M4.0



IEE's TDflex™ is an award-winning tailgate detection solution that prevents unauthorized access at:

- Doors
- Mantraps
- Airlocks
- E-gates
- Turnstiles
- Access points without doors



**New generation**

# Tailgate Detector TDflex™

## The Essential Security Layer for Your Access Control Systems

Today's access control systems are designed to help control and manage authorized access to secure areas. Ensuring that every individual has properly presented a valid ID or successfully cleared biometric identification is a major challenge faced by security professionals. Preventing tailgating and piggybacking, in other words misleading or outsmarting the system, is a problem existing solutions do not sufficiently address.

IEE's Tailgate Detector TDflex™ offers a solution that ensures only authorized people can enter a restricted area by adding an additional and essential security layer.

### Efficient Security Staff Support

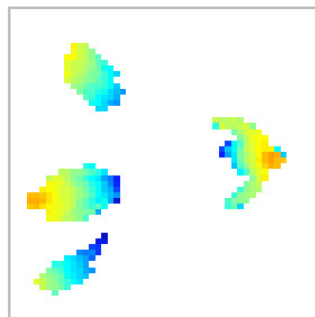
With IEE's TDflex™, businesses can optimize the scheduling of their security staff. As the sensor is fully automated, security staff do not need to physically monitor access points – they will be alerted if there is a security breach – and IEE's TDflex™ reduces the potential for human error.



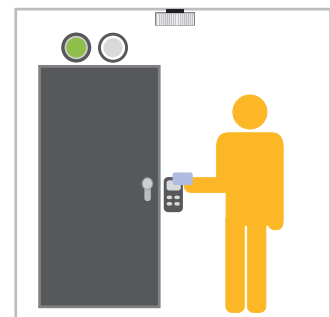
3D MLI Sensor™

## How TDflex™ Works

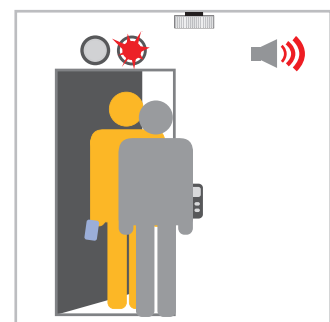
IEE has developed a 3D sensor that uses MLI (Modulated Light Intensity) technology. This technology is based on the optical time of flight (TOF) principle, where an active, non-scanning light source emits modulated near-infra-red light. The phase shift between the light emitted by the source and the light reflected by the people and objects in the field of view is measured to create a real-time topographic image of the monitored area. The 3D MLI Sensor™ calculates the exact number of people transiting the detection area and triggers an alarm when it detects situations such as tailgating or piggybacking.



Topographic image



Access allowed



Alarm

# Features

## High Accuracy

Sophisticated algorithms and extensive test scenarios ensure reliable detection of people and objects in the detection area. These test scenarios, which consist of people carrying or wheeling luggage, wearing hats, or walking closely together, show that IEE's TDflex™ can both handle people carrying objects and detect multiple individuals in close proximity.

## Reliability in Changing Light Conditions

As the sensor emits its own illumination, the performance is not influenced by artificial light and the sensor also works in the dark.

## Embedded Software

Due to its integrated firmware, the sensor does not require any additional computer or server to process the data it captures.

## Sensor Management Tool

The computer-based, multi-lingual sensor management tool enables management of multiple sensors and offers the following features:

- Multi-sensor configuration and backup
- Fast software updates via the Ethernet network
- The ability to copy any given configuration to multiple sensors
- Multi-sensor status monitoring and advanced diagnostics
- Password-protected configuration
- Language selection

## Semi-Automatic Calibration

After configuring basic parameters such as mounting height, detection width and length, the sensor calibrates itself within a few seconds. During

this calibration, the sensor checks the empty detection area and captures the presence of fixed objects and walls.

## Digital I/O Module

IEE's TDflex™ comes with a separate I/O module that features seven digital inputs and eight digital outputs. This module, which is powered via IEE's TDflex™, should be installed on the secure side, in order to maximize security.

## Audible Feedback for Confirmation and Alerts

IEE's TDflex™ has an integrated buzzer which can be used to give individual acoustic feedback for such things as:

- Pre-alert
- Tailgate alert
- Access allowed/impeded
- More than one have entered (real mantrap mode)

## Self-Diagnostics

A self-diagnostic routine runs at start-up and is regularly repeated to detect any sensor malfunction.

## Data Logging

Historical data and system events:

- Tailgate alerts
- Abort credits
- Bypass on/off
- Superuser requests
- System errors

## Superuser Mode

This is a temporary directional bypass, triggered by a person using a specific superuser badge with an access control device, that allows the superuser to:

- escort visitors without credentials
- enter with carts containing very large objects of any shape

# Features

## People Counting

In addition to its access control features, IEE's IEE's TDflex™ can also be used as a People Counter:

- Forward/Backwards counts
- Current number of people in the detection area
- Zone occupancy. Triggering of an alert (SMS, e-mail, relay), if occupancy exceeds or falls below the set thresholds
- If there are multiple access points, the occupancy of the entire area can be monitored in the IEE Occupancy Tool (XML-RPC option required)
- Historic counting data logging, analysis and reporting

## Advanced Anti-Tamper Protection

With its optical, mechanical and electronic functionalities, IEE's TDflex™ now offers improved anti-tamper protection. This greatly reduces the chance that anyone can manipulate the sensor.

## Seamless Integration into Existing Access Control Systems (ACS)

IEE's TDflex™ interfaces with any ACS via digital inputs and outputs (I/Os). These signals allow you to control the doors and trigger alerts if there has been a security breach.

If a person who has authenticated decides not to enter the secure area, IEE's TDflex™ sends an "abort credit" signal to the ACS.

In addition to the digital I/Os, the ACS can also communicate directly with IEE's TDflex™ via XML-RPC (optional).

## Easy Installation

The IEE's TDflex™ Design Housing - available in white, black and gray - provides easy and aesthetic integration into existing building architecture. The Design Housing can be integrated into dropped ceilings ("Flush mount"), on the ceiling ("On-ceiling") or, by using an extension, below the ceiling ("Under-ceiling") offering increased flexibility for all kinds of ceiling structures.

IEE's TDflex™ is compatible with single or double doors swinging into the field of view and can be installed either on the unsecure side (preferred) or the secure side.



## Operating Modes

IEE's TDflex™ is a Tailgate Detector with two main operating modes:

- Virtual mantrap
- Real mantrap

### Virtual Mantrap Mode

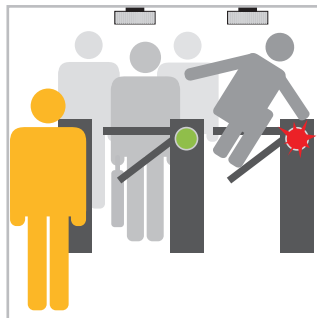
In this mode, IEE's TDflex™ monitors single access points to and from a secure area and is usually installed in front of doors. It is also possible to monitor mechanical or optical turnstiles, or virtual access points without any physical barrier.

If an unauthorized person attempts to gain access, IEE's TDflex™ generates an alert. This means that, depending on the security strategy, the door can be locked as a preventative measure ("high security strategy"), or if the secure area is breached, an alert can be triggered.

IEE's TDflex™ can also monitor people leaving the secure area to ensure there is no tailgating – effectively forcing people to badge out.

In the virtual mantrap mode the following outputs are provided:

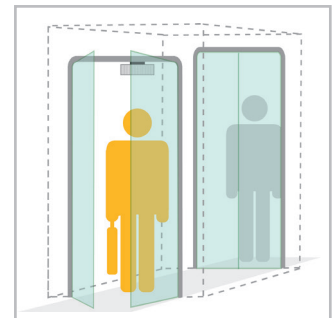
- Access recommendation
- Pre-alert
- Tailgate alert
- Status indicators
- Abort credit



*Unauthorized access at turnstiles*

### Real Mantrap Mode

In the real mantrap mode, IEE's TDflex™ monitors any space within two or more interlocking doors. In this mode, IEE's TDflex™ does not consider authentication credits (inputs) from the access control system; it continuously provides the occupancy status of the mantrap. This is then used to safely control the doors.



*Mantrap*

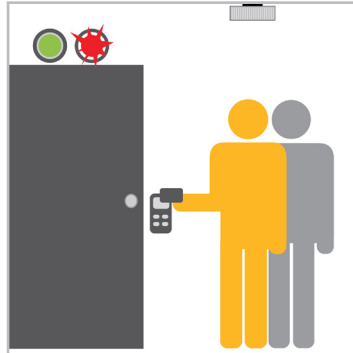
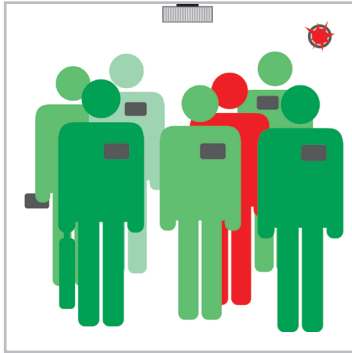
With the classic strategy of "single person transfer", which enforces the transit of one person at the time, IEE's TDflex™ provides the following outputs:

- Empty
- Only one person
- Suspicious e.g. more than one person or a person behaving abnormally

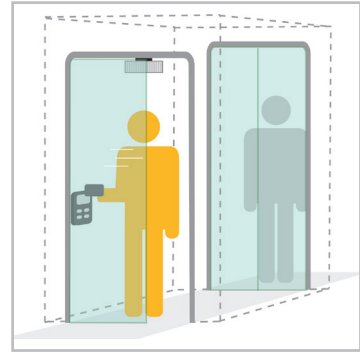
As an alternative to "single person transfer", IEE's TDflex™ can also ensure secure transit of multiple people at a time, by counting the people inside the mantrap. This allows for higher throughput without compromising security.

# Unparalleled Flexibility in Different Infrastructures

## Virtual Mantrap Mode



## Real Mantrap Mode



### No Door

#### Entry/Exit readers:

- Generates an alert if a person without ID transits

#### Passive RFID:

- Counts the number of people in the detection area
- Generates an alert if a person without ID enters the detection area
- No credit allocation

### One Door

#### High security strategy:

- One person at a time
- The door is locked if more than one person is detected in the field of view

#### High throughput:

- Generates an alert if a person without ID enters or exits
- Crowding is allowed

### Two Doors

#### Single person transfer:

- Outputs "empty", "one person" or "suspicious"

#### Multiple person transfer:

- Counts the number of people present in the mantrap. This number is checked by an external logic against the number of credits



## Technical Data

Device Properties	TDflex96M4.0	TDflex64M4.0
Mounting height	2.5 to 3 m	3.0 to 5.0 m
Maximum detection area at virtual gate	2.8 m x 1.1 m to 3.8 m x 1.6 m	2.6 m x 1.0 m to 4.6 m x 1.9 m
Maximum detection area in mantrap	3.6 m x 1.9 m to 4.6 m x 2.5 m	3.6 m x 1.8 m to 4.6 m x 2.75 m
Field of view/illumination	90° x 60°	60° x 40°
Type of illumination	Modulated near infrared light (NIR)	
Weight	0.8 kg (Core Housing) + 0.16 kg (Design Housing)	
Dimensions of the Core Housing	Ø 138 mm x H 60 mm	
Dimensions of the Design Housing	Ø 147 mm (integration cutout diameter), Ø 181 mm (outside rim diameter), 70 mm (height)	
Operational temperature range	-20°C to +50°C	
Enclosure rating (device with fan)	IP 30	
Supply voltage range	24 V DC ± 15%	
Power consumption	max. 1.0 A at 24 V DC	
Core housing material	Polymer	
Technology	3D MLI Sensor™	

TDflex™ M4.0 Sensor



# Tailgate Detector

## TDflex™ M4.0



### About us

IEE develops and manufactures cutting-edge sensing systems for building security and management. The innovation driven company is specialized in design and manufacture of people counter, unauthorized access control and volumetric object surveillor devices. IEE's TDflex™, unique, multiple award-winning tailgate detector, provides an additional security layer in modern access control systems in buildings and thus prevents unauthorized access to highly secured areas.

As a worldwide pioneer in passenger presence detection, IEE is one of the leading suppliers of advanced automotive interior sensing solutions. Founded in 1989 and headquartered in Luxembourg, it has operations in Europe, America and Asia. IEE employs 4,100 people worldwide and more than 10% of the company's workforce is engaged in Research & Development.

### Contact

Want to learn more about our access control solutions?

- Contact your local dealer
- For purchase information, please email us at [infrastructure@iee.lu](mailto:infrastructure@iee.lu)
- Visit our website [www.iee.lu](http://www.iee.lu)