

# Door Detective<sup>®</sup> SG

## Architectural & Engineering Specification

### PART I – GENERAL

#### 1.01 REFERENCES

- A. The Door Detective shall be CE marked in accordance with following the European Directives.
  - 1. Electromagnetic Compatibility EU Directive 2014/30/EU
  - 2. Low Voltage EU Directive 2014/35/EU
- B. The Power supply unit (PSU) shall have an output rating of 12Vdc or 24Vdc at 5W (Excluding Lock Power). Alternatively, the Unit can be powered over the Ethernet using a Class 2 POE unit in the IEEE 802.3af standard with a Lock Power supply connected to the Door Detective to provide lock power only.

#### 1.02 QUALITY ASSURANCE

- A. Manufacturer must operate a Quality Management System that meets the ISO 9001:2015. International Standard for design, development, and manufacturing activities, including associated software products.
- B. Manufacturer must operate an Environmental Management Systems that meets ISO14001:2015 International Standard.
- C. The manufacturer shall be a global supplier specializing in the design and manufacture of anti-tailgating products.

### 1.03 SUBMITTALS

- A. Submit manufacturer's product literature including datasheet and drawing pack for specific model, including options.
- B. Provide high resolution photos.
- C. Provide, upon request, Door Detective Installation & Maintenance manual.

### 1.04 DELIVERY, STORAGE AND HANDLING

- A. Deliver equipment and materials to a specified location in manufacturer's packaging undamaged, complete with installation instructions.
- B. Store off ground, under cover, protected from weather and construction activities. For periods of extended storage, the equipment will be kept in an environment that regulates temperature and humidity.

### 1.05 PROJECT/SITE CONDITIONS

- A. The Door Detective SG head units shall be wall mounted, near to door frames, at 250mm high from the floor level, and in strict accordance with manufacturer's installation chapter in the provided Installation & Maintenance manual.
- B. The Door shall always open away from the Door Detective SG head units.

### 1.06 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of Door Detective system that fails in materials or workmanship within specified warranty period. Failures include all faulty circuit boards (PCB). Warranty Period: 1 year from date of shipment or 2 years from installation with on-line product registration using manufacturer's Fastlane *Connect* remote services.

## **PART II - PRODUCTS**

### **2.01 MANUFACTURER**

A. Integrated Design Ltd  
Feltham Point  
Air Park Way  
Feltham  
Middlesex  
TW13 7EQ  
United Kingdom  
Tel (0) 208 890 5550  
Fax (0) 208 890 2444

**\*\*AMERICAS EXCLUSIVE DISTRIBUTOR:**

Smarter Security, Inc.  
110 Wild Basin #200  
Austin, Texas 78746 USA  
Tel: 800.943.0043

### **2.02 PRODUCT**

Door Detective SG, NO SUBSTITUTIONS.

### **2.03 CONSTRUCTION**

**A. Exterior:**

1. Enclosure: Steel Jet black powder coated RAL 9005 with 30 % gloss with optional stainless steel 304 grade 240 grit (Satin No. 4) horizontal grain, with frosted acrylic filter windows for the infrared beams and status display and a black acrylic window for the upper beams.
2. End Caps: Black ABS (Acrylonitrile-Butadiene-Styrene) plastic

**B. Interior:**

1. Internal frame: Aluminum.
2. 4 No. M6 fixings are required to secure the internal frame to the wall structure.

**C. Decorative Tops:**

1. ABS plastic

**D. Card reader:**

1. Wall mounted on the Right-Hand Side of the Door viewed from the entrance.

2. Small card readers can be installed as detailed in the supplied installation manual.

E. Status Displays

1. The indicator is provided by light emitting diodes (LED) diffused through frosted clear acrylic windows attached to the enclosure of each head unit.

F. Head unit:

1. Dimensions: Height 750mm, Overall Width 61mm
2. Weight: less than 3kg
3. Unit enclosure shall provide an Ingress Protection rating of IP20.

## 2.04 EQUIPMENT

- A. General: Two adjacent head units utilizing pulsed infrared beams to create an invisible electronic field between the units, monitoring the throughput of open, access-controlled doorways in both directions; ensuring that the 'one person, one door access' rule is met; preventing both unauthorized entrants and tailgating. Two additional upper beams facilitate the detection of side-by-side tailgate events (Sidegating). All feature settings and calibration are built into the unit, managed by the relevant processor/microcontrollers.
- B. Types of units: The system shall consist of Local and Remote Head units to provide a lane.
- C. Capabilities:
1. Detect and deter unauthorized persons from entering the protected area.
  2. Detect unauthorized persons more than 20mm at waist height, behind an authorized person, that is "tailgating" or "piggybacking."
  3. Detect non-collusive people walking side-by-side (sidegating) through the portal.
  4. Detect direction of movement, that is, entry and exit.
  5. Verify entry into the protected area following authorization.
  6. Provide alarm outputs on detection of a violation by means of local sounders and indicators.
  7. Operate in bi-directional, single direction, no entry or free access modes.
  8. Minimize false alarms using infrared beams connected to intelligent detection algorithms.
  9. Process a high number of people without security guard intervention, unless access is rejected by the system, or a system anomaly occurs.

10. Ensure a fast throughput, up to one person per second, subject to the access control system and limitations of doorway used.
11. Buffering multiple inputs from an access control system to maximize throughput.
12. Easy to use.
13. Allow safe emergency egress through a fire alarm input to unlock doors and allow free exit.
14. Entry and exit with an authorized card, biometric, or other credential.
15. Entry and exit that is unauthorized causing an alarm.
16. Card presented for entry but exit occurring causing an alarm.
17. Card presented for exit but entry occurring causing an alarm.
18. Obstruction of an infrared beam path causing an alarm.

#### D. Optical System

1. Intelligently monitored infrared beam matrix: Up to 12 beam paths per lane.
  - a. IR Beams with distributed processing for maximum signal analysis. Every 6 infrared beam path has a dedicated microprocessor coupled to a custom-designed system controller. These technologies work together to create an "entity management" system that 'thinks' in real time to accurately position the size, shape, and speed of individual entities in the lane.
  - b. Superfluous user behavior tolerated by the software without generating an alarm condition due to:
    - i. Partial passage through the beams and moving back out again.
    - ii. Hesitation in the beam field.
    - iii. Presenting a card for authorization while within the beam-field, but before completing passage through it.
2. Two additional upper beams to detect side-by-side tailgating.
3. Access request transaction speed: Time delay of no greater than 100ms in signaling passage through the beams and readying the lane for the next user except when a greater delay is caused by the attached access control system.
  - a. The optical system must be capable of throughput of up to 1 person per second.
4. Visitor Management System: Allows an unlimited number of people to pass through the door. Once the visitors have entered and the system no longer sees anyone entering or exiting for 3 seconds, the beam operations return to their original security setting.

## E. Operating Modes

1. Normal mode – whereby the door is locked, the visual indicators are in standby (white display); and from a requested and authorized direction of travel, the door unlocks, and the visual indicators turn to green. The visual indicators return to the white display and the door relocks after the user has passed through the door.
2. Visitor entry mode – where the lane opens (door unlocks and visual indicators turn flashing green) upon visitor request and allows free travel through the door without issuing an alarm. Once the system no longer sees anyone entering or exiting for 3 seconds, the visitor authorization will expire, and the unit will return to the standby state.
3. Emergency – unit must have a dedicated input for integration with a fire control panel and/or a green break glass unit to receive fire alarm signals. When the emergency signal is activated, the door lock relay remains de-energized to allow users to exit. Once the emergency signal is deactivated, the unit must return to the normal operating mode immediately preceding the alarm.

## F. Inputs:

1. Entry Request: Normally Open, volt-free contact. Closing on request for <1 second
2. Exit Request: Normally Open, volt-free contact. Closing on request for <1 second
3. Entry Visitor Request: Normally Open momentary closing switch contacts. Volt-free contact.
4. Exit Visitor Request: Normally Open momentary closing switch contacts. Volt-free contact
5. Door sensor input (door contact)
6. Fire panel signal (Opto-isolator input, 12/24Vdc, 10mA, see installation manual)
7. Ethernet port (RJ45 connection)

## G. Outputs:

1. Output to Access control System
  - a. Access monitoring (used as confirmation of access after authorization)
    - i. Entry: Normally closed (opening for 1s)
    - ii. Exit: Normally closed (opening for 1s)
  - b. General Alarm: Normally closed (opening for a minimum of 1s)
  - c. Lock Feedback Relay: Normally closed relay contact
2. Lock output: 12Vdc or 24Vdc with maximum current rating of 1A (subject to power supply voltage used)

3. Audible Alarms:

- a. Local alarm sounders.
- b. Relay Contact: utilized to trigger external alarm systems.

5. Status Display: Provide for each lane a visual indication of the status of the lane.

- b. Standby – White
- c. Please Proceed – Green (Entry)
- d. Please Proceed – Bright White (Exit)
- e. Please Proceed Visitor Mode – Flashing Green
- f. Red – Lane closed.
- g. Flashing Red - Alarm.

H. Power Requirements:

1. Head Units

- a. Low voltage 12 or 24Vdc supply; connected to the Local Head Unit
- b. Alternatively, a Class 2 POE unit; connected to the Local Head Unit
- c. Hazardous voltage shall not be present at the head unit to ensure user safety.

2. Power Supply Unit:

- a. PSU to be remotely installed.
- b. PSU input voltage 100-240Vac 60/50Hz.

I. Wiring Requirements:

- 1. Head Unit Wiring: The Local Head Unit requires an independent 12Vdc or 24Vdc supply using a minimum conductor cross sectional area of 16 AWG (1.5mm<sup>2</sup>) e.g., Belden 8620 or similar.
- 2. System Interconnect: a CAT5 cable (provided) between the Local and Remote Head Unit for each lane to facilitate power and synchronization of infrared beams.
- 3. Earth Cables: earth connection from each Local head Unit to ground, using a green/yellow sleeved cable with a minimum conductor cross sectional area of 18 AWG (1mm<sup>2</sup>).
- 4. Card Readers: as required by access control system manufacturer (typically wall mounted on the right-hand side of the entrance).

5. Access Control Lane Integration: as required by access control system manufacturer. (Typically, 10-conductor cable with a minimum conductor cross sectional area of 0.35mm<sup>2</sup> (22 AWG))
6. Emergency Input: Requires a 2-core cable from the Fire Panel Normally Closed relay contacts (or 12-24V signal) to the Local Head Unit. (Subject to the local regulation)
7. TCP/IP cables: An Ethernet cable is required between the processor board on the Local Head Unit and a LAN hub/switch.

## 2.05 FACTORY TESTING

- A. Door Detective SG is subject to functional testing to ensure proper operation and electrical connectivity. The product has the covers fitted and is inspected for mechanical, electrical and aesthetic condition prior to packaging and shipment.

## 2.06 SECURITY EQUIPMENT

- A. Card Readers: System compatible with major access control technologies for owner-provided card readers of suitable dimensions to be wall mounted on the right-hand side of the entrance. Smaller card readers may be mounted inside the Local Head Unit under the upper End Cap.
- B. Manufacturer-supplied Accessories

### 1. Ethernet

Each Door Detective SG has web pages that may be accessed using a computer/web browser when the lane is connected to a LAN. (A Fastlane finder application may be downloaded from [www.fastlane-turnstiles.com](http://www.fastlane-turnstiles.com) to gain easy access to the lanes connected to the LAN)

The Door Detective Processor may be set to operate using DHCP or static IP addresses as required.

The web pages may be used for remote control, diagnostics or lane configuration.

### 2. Multilane Touchscreen Console

An optional Multilane Touchscreen Console connected to a LAN (or on a hub directly to the Fastlane Turnstiles) may be used for Visitor Entry/Exit, Alarm Indication, Population counting and lane configuration.

## 2.07 ENVIRONMENTAL

- A Product use:

1. Energy consumption per lane: 43kW hours per annum.



2. Maintenance: Annual Interval 12 months interval minimum.
3. Indoor use only.

## 2.08 SUSTAINABILITY

- A. The product is recyclable at the end of life. The following materials are to be distributed to appropriate recycling facilities resulting in a very low residual waste of non-recyclable material.
  1. Stainless Steel (sheet material 1mm to 1.5mm thickness)
  2. Aluminum (sheet material 1 to 3mm thickness)
  3. Plastics
  4. Printed circuit boards
- B. The product is supplied with recyclable carton packaging comprising of the following materials.
  1. Corrugated fiberboard

## **PART III – EXECUTION**

### **3.01 SITE EXAMINATION**

- A. Inspection: Installer / Integrator shall examine the installation and advise the contractor of any site conditions unacceptable for proper installation of product.
  - 1. Both Local and Remote Head units must be wall mounted and optically aligned as detailed in the supplied installation manual.
  - 2. The mains electrical supply service for the power supply and low voltage/ control cables must be installed.
- B. Installation: Door Detective SG Head Units shall be installed in accordance with the manufacturer's Installation & Maintenance manual.
- C. Setup & Adjustment: Installer / Integrator shall perform initial equipment electronic adjustments to ensure proper performance after installation.
- D. Instruction: Installer / Integrator with a minimum of 3 years' experience installing Door Detective products shall furnish operator training for end users.
- E. Cleaning: Clean metal, plastic and acrylic surfaces carefully after installation to remove excess caulk, dirt, and labels.
- F. Maintenance: Maintain the equipment according to the manufacturer's instructions.

*[Integrated Design Limited reserves the right to change this specification at any time without notice.]*

**END OF SECTION**

### **Version History**

<b>Issue</b>	<b>Date</b>	<b>Change</b>	<b>ref</b>
A0	27/07/2023	First release	-