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## LASER SCAN DETECTOR

### DIVISION 28 – ELECTRONIC SAFETY AND SECURITY

#### MasterFormat 2020

#### 28 31 21.19 LIDAR Area and Perimeter Security Systems

##### Notes to Specifier:

1. Where several alternative parameters or specifications exist, or where, the specifier has the option of inserting text, such choices are presented in **<bold text>**.
2. Explanatory notes and comments are presented in *colored* text.

## LASER SCAN DETECTOR

### PART 1 GENERAL

#### 1.01 SUMMARY

- A. Section includes a LIDAR detection mechanism incorporating continuous laser scanning over a rectangular area with video camera logging.
- B. Product – An IP66 rated indoor/outdoor laser scanning sensor/detector capable of determining a moving object's size, speed, and distance, with eight independent and configurable detection zones and network connectivity.
- C. Related Requirements
  - 1. 28 05 11 Cyber Security Requirements for Electronic Safety and Security
  - 2. 28 06 30 Schedules for Security Detection, Alarm, and Monitoring
  - 3. 28 16 13 Access Control Interfaces to Intrusion Detection
  - 4. 26 31 31 Intrusion Detection Interfaces
  - 5. 28 47 21.15 Notification Interfaces to Security Detection, Alarm and Monitoring
  - 6. 28 51 51.15 Information Interfaces to Security Detection, Alarm and Monitoring

#### 1.02 REFERENCES

- A. Abbreviations
  - 1. LIDAR - Light Detection and Ranging
- B. Reference Standards
  - 1. Electronic Code of Federal Regulations, Title 47, Chapter 1 Federal Communications Commission), Part 15, Subpart B - Unintentional Radiators
  - 2. IEEE 802.3 - Ethernet Standards
  - 3. ONVIF Profile S
  - 4. UL 639 - Safety for Intrusion-Detection Units
  - 5. Laser Safety
    - a. FDA (21 CFR part 1040.10 and 1040.11) Class 1 - Laser Safety Standard
    - b. IEC 60825-1 – Safety of Laser Products
  - 6. Enclosure
    - a. ANSI / IEC60529 – Degrees of Protection Provided by Enclosures
    - b. International Electrotechnical Commission (IEC), Ingress Protection Rating IP66

#### 1.03 SUBMITTALS

- A. Product Data
  - 1. Manufacturer's printed or electronic data sheets
  - 2. Manufacturer's installation and operation manuals

#### 1.04 QUALIFICATIONS

- A. Manufacturer shall be ISO 9001 certified with a minimum of three years' experience in manufacturing perimeter and area intrusion sensors.

- B. Contractor installation personnel shall be Manufacturer- trained and certified for the Laser Scan Detector.

**1.05 WARRANTY**

- A. Manufacturer shall provide a 2 year limited warranty for the system to be free of defects in material and workmanship.

END OF SECTION

## PART 2 PRODUCTS

### 2.01 EQUIPMENT

- A. Manufacturer: OPTEX CO., LTD.  
5-8-12, Ogoto Otsu,  
Shiga 520-0101  
Japan
- Phone: +81-77-579-8000  
Web (English): [www.optex.co.jp/e/](http://www.optex.co.jp/e/)

- B. Models: RLS-50100V, RLS-3060V
- The Optex RLS-50100V has a 50m x 100m detection area.*
- The Optex RLS-3060V has a 30m x 60m detection area.*

- C. Alternates: None

### 2.02 GENERAL DESCRIPTION

- A. The Laser Scan Detector (“detector”) shall be an IP66 rated indoor/outdoor laser scanning sensor/detector capable of determining a moving object’s size, speed, and area encompassing **<50 x 100> <30 x 60>** meters from the detector in a rectangular footprint.
- Where <options> are presented, they apply to the RLS-50100V and RLS-3060V, respectively.*
- B. The detector shall provide functionality in conditions of low light and reduced visibility, including rain, snow, and fog.
- Fog performance will be determined by fog density.*
- C. The detector shall have the following required further characteristics:
1. Employ an FDA Class1 compliant laser source.
  2. Detection range: **<0 to 50 m> <0 to 30 m>** @ 10% reflectivity
  3. Detection Zones: 8 independent within the rectangular footprint, each customizable for object target size, sensitivity
  4. Resolution: **<.125°><. 25°>** within 100 msec. to 15 min.
  5. Employ built-in analytics to adapt sensor algorithm to environmental changes, such as weather and scenery.
  6. Possess a small animal tolerance mode, reducing sensitivity near ground level.
  7. Provide an auto area adjustment to continuously adjust the detection area between the object height and revised line of the ground due to snow or ground clutter accumulation.
    - a. Adjustment range: 0 to 20m (0 to 65ft).  
*1m (3.3 ft.) is default.*
  8. Able to be mounted and configured for either vertical or horizontal sensing modes.
  9. Mechanical pan-tilt adjustment:
    - a. Vertical panning: -5° – +95°
    - b. Swivel tilting: +/- 5°

- D. An assistance camera shall be integral to the detector assembly and provide:
1. Mounting and leveling assistance
  2. Pre and post alarm image captures, with support for up to 500 events
  3. Privacy masking configuration
  4. Output options: Video, all-black (full masking), mosaic.
- E. Event logging – The detector system shall maintain a log of alarm events, with date, time, and trigger.
- F. Outputs and Alarms:
1. Mechanical relay outputs (6): NO/NC contacts, 28 VDC 0.2A max.
    - a. Alarm Period (delay): 2 Seconds
  2. Digital outputs (6): ONVIF compliant signals sent over the network.
  3. ONVIF motion alarm (1): Configurable with multiple events.
  4. HTTP notification: User defined HTTP command to a designated network address
- G. Input (1): Non-voltage contact closure.
- H. Communications
1. Network: Ethernet 10BASE-T/100BASE-TX (Auto negotiation)
    - a. Connector: RJ-45
  2. Protocols: UDP, TCP, IPv4, HTTP, HTTPS, DNS, DHCP, SNMPv1-v3, NTP, WS-Discovery, ONVIF (Profile S)
- I. Management - The detector shall have embedded firmware allow a user to configure:
1. Detection area allocation and area masking
  2. Up to 8 alert zones and their individual sensitivity
  3. Dynamic event filtering
  4. Camera output mode
  5. Event log export & import function
  6. User interface adjustment
- J. Power
1. Voltage input: 19.2-30 VDC or PoE+ (IEEE 802.3at compliant)
  2. Current draw
    - a. standard: 500 mA max. (24 VDC), 12 W max. (PoE+)
    - b. with optional heater: 1.25 A max. (24 VDC), 25.5 W max. (PoE+)
- K. Enclosure
1. Dimensions (H x W x D): 9.1 x 6.3 x 10.1 inches (230 x 160 x 256.6 mm) max
  2. Weight: 92 oz (2.6 kg)
  3. Mounting: Ceiling, wall, or pole
  4. Environmental
    - 1.) Rating: IP66
    - 2.) Operating temperature:

- a.) without heater: -20 °C - +60 °C (-4 °F - +140 °F)
- b.) with heater: -40 °C - +60 °C (-40 °F - +140 °F)

### **2.03 ACCESSORIES**

- A. The sensor shall have the following optional accessories available:
  - 1. Replacement window, with or without heater
  - 2. Laser area checker tool – a tool which measures IR energy to assist in the confirmation of the laser detection plane.

END OF SECTION

## **PART 3 EXECUTION**

### **3.01 INSTALLERS**

- A. Contractor shall follow Manufacturer's recommended installation procedures and guidelines.
- B. Contractor personnel shall comply with all applicable state and local licensing requirements.

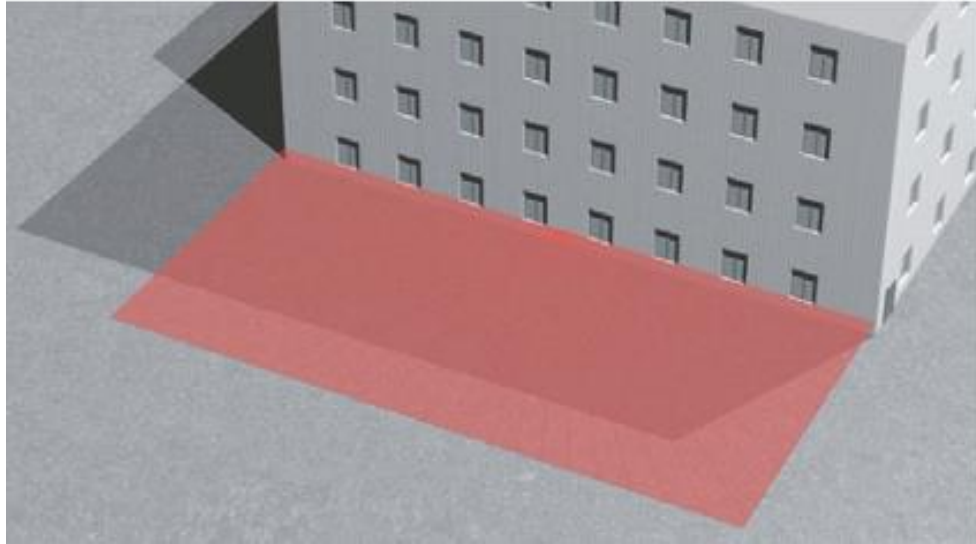
### **3.02 ATTACHMENTS**

- A. Detection area illustrations

END OF SECTION

**ATTACHMENT – Detection Area Illustrations**

**Horizontal Detection**



**Vertical Detection**

