Safety Laser Scanner
OS32C

• Compact, power-saving scanner for AGV
• EtherNet/IP to improve interoperability with standard control
• Easy zone configuration using PC

industrial.omron.eu/OS32C
Omron OS32C Safety Laser Scanner – the World’s most compact and versatile safety laser scanner for easy handling and installation with low power consumption.

The compact body allows installation in small spaces, e.g., automated guided vehicles and the detection angle up to 270° provides coverage of two sides with just one scanner.

Versatile solutions
- For collision avoidance of AGVs (Automated Guided Vehicles)
- For intrusion detection through an entrance
- For presence detection within a machine’s hazardous area

Features
- Easy configuration of complex zones
- Simplified wiring
- Replaceable sensor, no reprogramming needed
- Response time can be set from 80 ms to 680 ms
- Cable access options
- Reference Boundary Monitoring function

104.5 mm
Lowest profile
Compact and versatile safety laser scanner

1.3 kg
Lightweight body
for easy handling and installation

5W
Low power consumption
reduces battery load on the AGV (3.75 W in standby mode)

Flexible zone configurations
For complex AGV applications, up to 70 combinations – each with one safety zone and two warning zones – can be set. The two warning zones can be set to support various purposes such as warning sound and speed control.
Versatile scanner solving many applications

Intrusion detection

Reference Boundary Monitoring function supports intrusion detection without physically blocking the entrance. Supports various operation patterns by switching zone sets. Arm detection can also be made possible by changing the minimum object resolution to 30, 40, 50 or 70 mm through use of the configuration tool. However, the maximum size of the safety zone varies depending on the configured minimum object resolution.

Collision avoidance

Small, light and compact body provides easy installation on an AGV. Low power consumption (5W) reduces battery load on the AGV (3.75 W in standby mode). Up to 70 zone set combinations support complex AGV tracks.

Presence detection

Compact body allows for use inside the machine. Detection angle of 270° provides coverage of two sides with one scanner.

Intrusion detection with vertical installation

Guarding inside the machine

Presence detection of 270°

Presence detection of 270°

Integrated management via Ethernet

Industry’s first Ethernet-compliant Safety Laser Scanner allows the user to check operating status and analyse the cause of an emergency stop via LAN even in large-scale applications using multiple scanners.

Operating state can be determined at a glance

Eight sector indicators show the direction of intrusion. Front display shows operating state and error codes.

* US patent Nos.: US 6,753,776 B2
New convenient and easy-to-use functions

The OS32C uses time-of-flight (TOF) measurement to determine distance. The scanner emits a laser pulse, when the pulse hits an object the signal is reflected to the scanner. The OS32C then compares the distance/position of the object against the defined safety zone.

Easy configuration of complex zones

The configuration of the safety zone and warning zones can be done in real time using a PC. Configurations can also be created or modified offline.

Response time can be set from 80 ms to 680 ms

Response time adjustment can filter out erroneous detections (machine stoppage) caused by pollutants in the environment.

Reducing Erroneous Detections in Safety Zone

PTM (Pollution Tolerance Mode) enables a filter that allows the OS32C to distinguish between more than one detected reflection pulses. Ignoring small reflection pulses which could be caused by airborne dust or other contaminants in the safety zone.

This function prevents nuisance machine stops due to dust.

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Simplified wiring

Omron STI’s innovative I/O method requires fewer inputs when configuring multiple zones. Only 4 inputs are required to select from 6 zone sets. If all 8 inputs are used, up to 70 zone sets are available.

Cable access options

To tailor the OS32C to your installation, two options are available for the location of the power and ethernet connections:

- OS32-BP (Cable access from the back)
- OS32C-SP1 (Cable access from the left side)

These can be selected according to the needs of AGV or facilities design.

Provides Safety Category 3 safety circuit without a dedicated controller

Compliant to global safety standards
OS32C Safety laser scanner

- Type 3 safety laser scanner complies with IEC61496-1/-3
- 70 sets of safety zone and warning zone combinations are available, allowing for complicated changes in working environments
- A safety radius up to 4 m and warning zone(s) radius up to 15 m can be set
- Individual sector indicators and various LED indicators allow the user to determine scanner status at a glance
- Reference boundary monitoring function prevents unauthorized changes in the scanner position
- Configurable minimum object resolution of 30, 40, 50 or 70 mm, for hand and arm detection applications

Specifications

- Sensors: Type 3 safety laser scanner
- Sensor type: OS32C
- Safety Category: 9 (Safety Category 3 ISO 13849-1)
- Detection capability: Configurable, Non-transparent with a diameter of 30, 40, 50 or 70 mm (1.8% reflectivity as greatest) (default: 70 mm)
- Monitoring zone: Monitoring zone setup = Safety zone + 2 warning zones = 70 sets
- Operating range: OS32C-CBL: Safety zone up to 3 m, Warning zone up to 15 m
  OS32C-SP1: Safety zone up to 4 m, Warning zone up to 75 m
- Detection angle: 70°
- Response time: Response time from ON to OFF: From 0.8 ms to 1.7 scans
  Response time from OFF to ON: Response time from 0.8 ms to 40 s (configurable)
- Line voltage: 24 VDC ±25% (ripple p-p 2.5 V max.)
- Power consumption: 24 VDC +25%/-30% (ripple p-p 2.5 V max.)
- Power cable: M12, 4-pin connector

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Ordering information

<table>
<thead>
<tr>
<th>Description</th>
<th>Data, operating range</th>
<th>Order code</th>
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<tbody>
<tr>
<td>OS32C, with back location cable entry</td>
<td>1 m</td>
<td>OS32C-BP</td>
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<tr>
<td>OS32C, with side cable entry</td>
<td>4 m</td>
<td>OS32C-SP1-4M</td>
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<td>OS32C-BP-30M</td>
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</table>

Remarks

- Each connector is located on the left as viewed from the back of the I/O block.
- 6 Output polarity (NPN/PNP) is configurable via the configuration tool.
- 8 Total consumption current of 2 OSSDs, auxiliary output, and warning output must not exceed 700 mA.
- 9 Power consumption of 2 OSSDs, auxiliary output, and warning output must not exceed 700 mA.
### Connection

**Basic connection with single OS32C unit**

**Category 3, performance level d (ISO13849-1)**

**OS32C configuration**

- External Device Monitoring enabled
- Start/restart interlock

*1. External devices (ED1, ED2) are forced guide relays. (G7Z, G7SA, G7S, etc)

*2. If the External Device Monitoring is not used, connect brown/white wires to 0 V, and then turn OFF the External Device Monitoring with the configuration software.

*3. Use NC-contact for a start input.

*4. For zone select switch setting, refer to OS32C Series user’s manual.

Note: This wiring example is for category 3.
Would you like to know more?

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