SICK.COM

APPLICATION NOTE

SAFETY SOLUTIONS FOR SMALL MOBILE ROBOTS

Maxiumum safety coverage for your mobile robot applications

SICK Sensor Intelligence

APPLICATION NOTE

MAXIMUM SAFETY COVERAGE

Autonomous mobile robots (AMRs) are driving efficiency and safety gains across manufacturing and warehouse operations by taking on labor-intensive and potentially hazardous tasks. With studies showing workers lose weeks each year to unnecessary motion, many manufacturers are turning to AMRs—often smaller, space-saving models—to reduce labor waste and improve productivity.

As these compact robots become more common, fitting reliable safety sensors onto limited platforms can be challenging. Maintaining safe human-robot collaboration remains critical, yet many safety laser scanners are too large for small AMRs. As the world's lowest-profile safety laser scanner, SICK's nanoScan3 delivers robust LiDAR-based safety coverage in an ultra-compact form, enabling small mobile robots to operate safely and efficiently in shared workspaces.

SAFETY IN A SMALL PACKAGE: NANOSCAN3

→ ULTRA-COMPACT, LOW-PROFILE DESIGN

The nanoScan3 is an ultra-compact safety laser scanner designed for installations where space is at a premium. With a height of just over three inches—small enough to fit under a pallet—it enables high-performance machine safeguarding in applications that previously offered little or no room for safety sensors.

→ CONTROLLER-FREE WITH LOCAL I/O

Operating via local I/O, the nanoScan3 eliminates the need for a separate safety controller or PLC, reducing system complexity, installation time, and panel space. Dual OSSD outputs support two independent protective fields, enabling functions such as robot speed reduction in one zone and a full stop in another.

→ FLEXIBLE MONITORING

Direct static inputs allow the nanoScan3 to detect robot motion and direction, enabling automatic switching between monitoring cases. This flexibility supports dynamic safety strategies for stationary robots as they turn or change orientation during operation.

→ RELIABLE DETECTION

Built on SICK's proven microScan3 platform, the nanoScan3 uses patented safeHDDM® technology to deliver reliable detection even in challenging environments. It resists interference from dust, contamination, and ambient light, minimizing false trips and maximizing uptime.

→ WIDE COVERAGE, SIMPLE INSTALLATION

The nanoScan3 offers up to 128 freely configurable fields and monitoring cases within a 3-meter protective range and a wide 275-degree scanning angle. Standard M12 connectivity makes installation quick and straightforward, giving manufacturers a powerful, space-saving safety solution for stationary robot applications.

Learn more
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