Revolutionizing 2D measurement. Maximizing longevity. Challenging expectations.

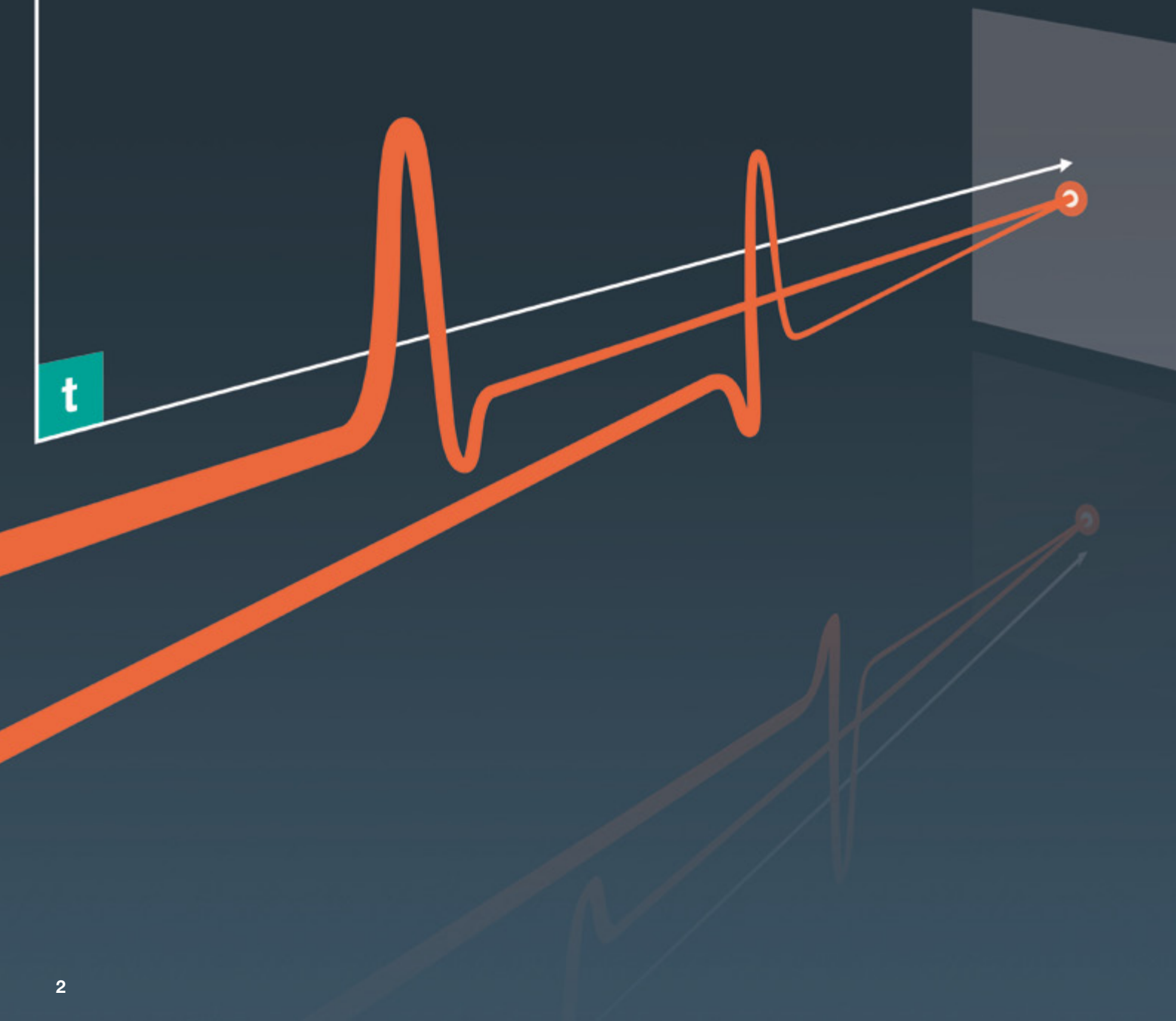
R2100
Multi-Ray LED Scanner

Your automation, our passion.

PEPPERL+FUCHS

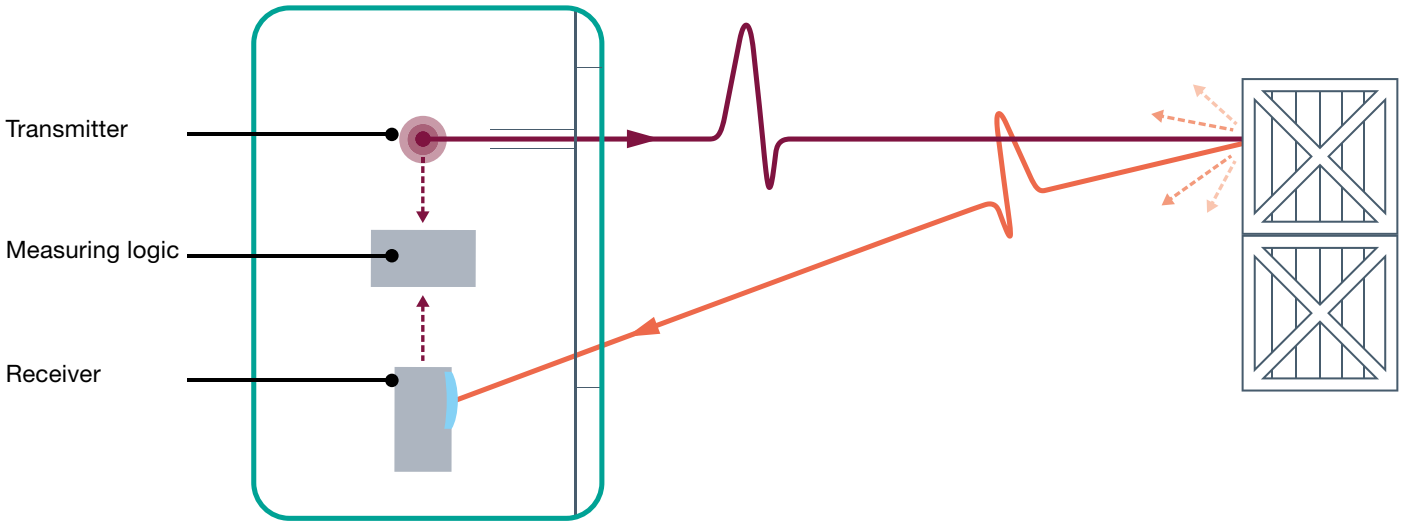
A Distance Ahead: Your Crucial Edge in the Market

The new generation of distance-based photoelectric sensors from Pepperl+Fuchs is the first to combine measurement principles and the simplicity of standard sensoring technology.



Pulse Ranging Technology

Pulse Ranging Technology (PRT) is an innovative measurement method from Pepperl+Fuchs and is well established in many areas of automation technology. Now PRT is more powerful than ever before, providing two-dimensional measurement over an area instead of just one point. This creates new opportunities for a variety of applications.



Pulse Ranging Technology – true time-of-flight technology

True time-of-flight technology

Sensors with PRT emit a very short, high-intensity light pulse and calculate object distance based on the speed-of-light constant and time of flight of the reflected light pulse.

Unlike other time of flight sensors that emit a continuous light beam, PRT sensors emit short pulses of high-intensity light at up to 250,000 times per second. Compared to a continuous source, the energy density of one PRT pulse can be up to 1,000 times greater, allowing stable and highly reliable detection, even at distances of 300 meters or more.

In contrast to triangulation-based sensors, the detection range of a PRT sensor is not limited by the geometrical layout of the sensor optics. Consequently, PRT sensors can take advantage of smaller housings while still providing significantly larger detection ranges.

Sophisticated Design for Maximum Efficiency

The R2100 pushes the realm of possibility one step further by combining our PRT with ultra-IR LEDs and multiray scan. Equipped with these breakthrough technologies, the R2100 becomes an economic solution with exceptional performance, flexibility, and durability.

R2100: Multi-Ray LED scanner + PRT in one device

Distance measurement over a wide area with no moving parts – these fundamental principles give the R2100 a distinct advantage over conventional laser scanners.

Unlike most 2D laser scanners that use a motorized system to rotate a mirror, the R2100 evaluates a 2D area over 88 degrees by employing multiple emitter elements arranged side by side. This results in a robust, fast, and cost-effective sensor solution.

Highlights

- PRT provides reliable and precise distance measurement information
- Ultra-IR LEDs guarantee powerful performance and a long lifetime
- No moving parts for added durability in difficult application environments
- 2D measurement with multiray scan
- Multiple wide-beam emitters ensure reliable object detection regardless of surface texture
- Low current consumption reduces energy-related design and operating costs
- Fast response time for rapid processes

The World's First Multi-Ray LED Scanner

Durable and robust

R2100 delivers extra durability and ruggedness by eliminating the need for moving parts that can break down or wear out over time.

2D measurement

Multiray scan combined with an array of ultra-IR LEDs creates a wide sensing area for reliable measurement in 2D – even on irregularly shaped objects and surfaces.

Mature technology

PRT is the most effective time-of-flight measurement technology for maximum precision and reliability over large distances, even in harsh ambient conditions.

Always eye safe

Ultra-IR LEDs are inherently eye safe, yet still provide powerful performance and exceptional longevity over a wide range of operating temperatures.

Reliable measurement results

For the first time, the power and flexibility of PRT is being harnessed for improved detection of objects with irregular surfaces. Multiple emitter elements arranged side by side create a wide field of coverage.

PRT ensures reliable and stable 2D measurement results, independent of the application environment. This makes the R2100 scanner a truly unique solution for a wide range of automation tasks.

Technical Information	
Measurement range	0.2 ... 8 m
Light type	Modulated infrared, 850 nm
Scan rate	50 Hz (1 scan = 11 measurements)
Scan range	88°
Resolution	1 mm
Operating voltage	10 ... 30 V DC
No-load supply current	≤ 120 mA/24 V DC
Degree of protection	IP67
Ambient temperature	-30 ... 50 °C (-22 ... 122 °F)
Dimensions	157 mm × 81 mm × 45 mm
Model number	OMD(8000-R2100-R2-2V15)

Controlling the opening range on overhead doors

Cutting-edge Design for Greater Efficiency

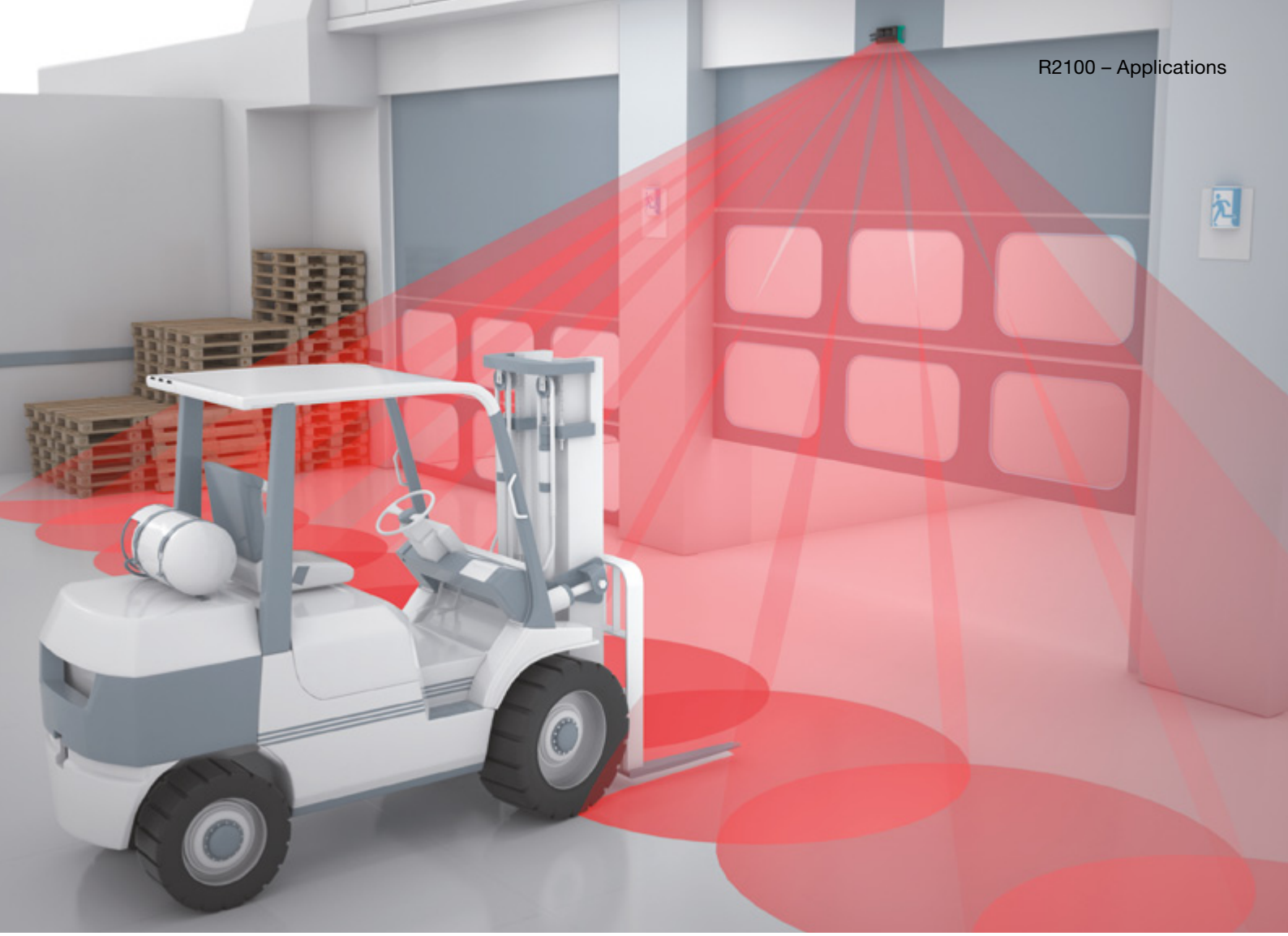
With its compact design and robust housing, the Multi-Ray LED Scanner R2100 is ideal for applications involving industrial doors. The scanner delivers precise measurement results regardless of the object or surroundings, and is the ideal solution to increase energy efficiency.

Increased Energy Efficiency

The R2100 is particularly suitable for solving complex tasks such as controlling the opening height on overhead doors. Mounted directly on the door, the sensor determines the exact height of the vehicle in front of the door. The door opens only as far as necessary for the vehicle to pass. The robust sensor design guarantees reliable measurement results, even for mechanically challenging loads such as moving or vibrating door segments.

Studies have shown that this system generates considerable savings potential for the user, as less heat escapes the building with a partial door opening compared to a full door opening.

The R2100 therefore helps to promote energy balance in buildings, especially industrial halls, and makes a valuable contribution to energy efficiency and resource conservation.



The R2100 as an approach sensor

Extremely Robust and Reliable

You can also use the scanner as an approach sensor on industrial doors. Unlike passive infrared or microwave sensor technology, the R2100 monitors the presence of objects or vehicles in front of the door regardless of heat or motion. If an object is detected, the door opens.

Designed without moving parts such as bearings or motors that could break down or wear out over time, the R2100 delivers the extra durability, ruggedness, and measurement stability to keep traffic flowing and goods moving in your manufacturing facilities, warehouses, and distribution centers. Even more, eye safe ultra-IR LEDs and no moving parts result in low power consumption and allow operation over a wide range of temperatures without the need for additional cooling equipment.

Typical applications

- Opening height control
- Approach sensor
- Vehicle detection
- Height monitoring

Your automation, our passion.

Process Interfaces

- Intrinsically Safe Barriers
- Signal Conditioners
- Fieldbus Infrastructure
- Remote I/O Systems
- HART Interface Solutions
- Wireless Solutions
- Level Measurement
- Purge and Pressurization Systems
- Industrial Monitors and HMI Solutions
- Explosion Protection Equipment
- Solutions with Process Interfaces

Industrial Sensors

- Proximity Sensors
- Photoelectric Sensors
- Industrial Vision
- Ultrasonic Sensors
- Rotary Encoders
- Positioning Systems
- Inclination and Acceleration Sensors
- AS-Interface
- Identification Systems
- Logic Control Units

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