



**iris** INTELLIGENT  
SENSING

# IRMA 6 R2

A new standard for future-proof, Automatic  
Passenger Counting and object recognition



reddot award 2019  
winner



## FEATURES



### PRECISE + FAST

- High-tech sensor to differentiate and count people and objects (adults, children, bicycles, wheelchairs) based on 3D data and AI algorithms
- Simultaneous detection of the direction of movement of passengers boarding and alighting (even with low door heights and crowds)
- Latest generation 4-core processor, AI processor, graphics processor, digital signal processor
- Real-time transfer of highly accurate raw data to the on-board computer, a server or to the Cloud (IoT-capable)

### USER-FRIENDLY + ADAPTABLE

- Plug&Play: Straightforward installation with an integrated mounting system and few configuration parameters
- Simple commissioning of the sensor through import/export of the configuration
- Customer-specific accessories and a large choice of cables for different installation requirements
- Intuitive, secure, multilingual web interface for installation and service

### SECURE

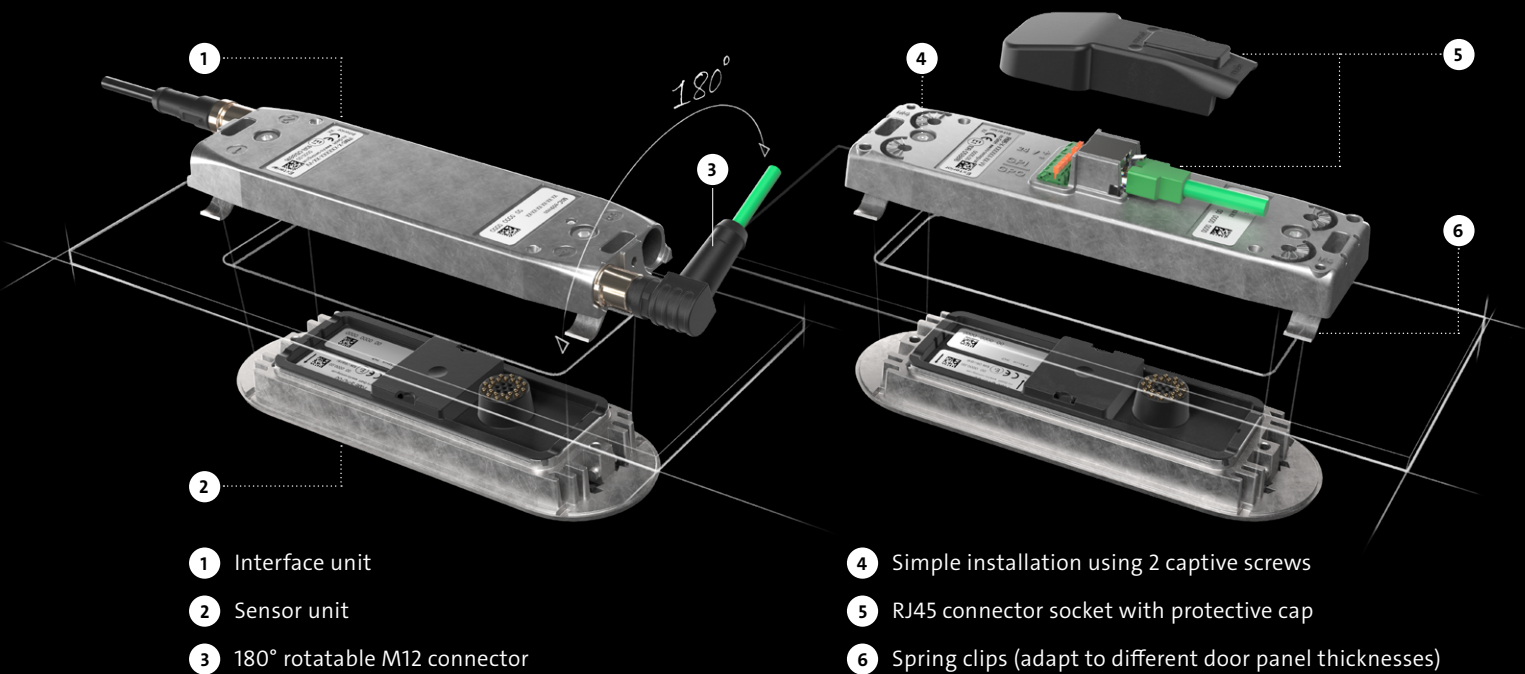
- Role-based user management
- Secure firmware and firmware updates through signing
- Event logging even in the case of power outages for troubleshooting and security incidents

### MULTI-FUNCTIONAL + ROBUST

- Independent of ambient light due to active illumination with laser-based VCSEL technology
- Self-diagnosis: Sensor status displayed via LEDs, web interface and log queries for quick troubleshooting
- Automation of updates, configuration and commissioning thanks to comprehensive API

### FUTURE-PROOF

- Latest hardware with long-term availability and maximum computing power for durable operation in public transport
- Flexible sensor platform for future expansions and new features

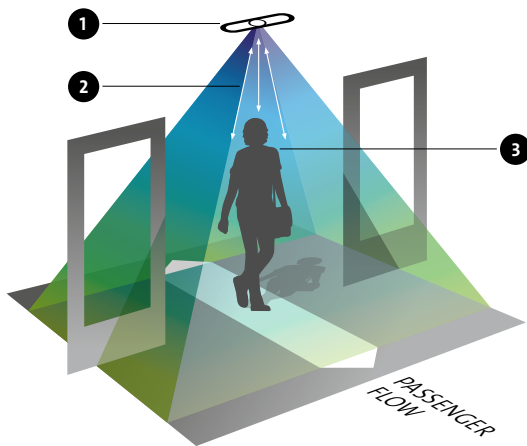


- 1 Interface unit
- 2 Sensor unit
- 3 180° rotatable M12 connector
- 4 Simple installation using 2 captive screws
- 5 RJ45 connector socket with protective cap
- 6 Spring clips (adapt to different door panel thicknesses)

## APPLICATIONS

- Passenger load detection in real-time
- Effective passenger distribution
- Demand-based control of fleet use
- Vehicle design according to passenger requirements
- Cost reduction thanks to optimisation of routes
- Precise revenue sharing based on the transport service provided
- Comparison of passenger volume with ticket sales
- Transmission of the passenger load detection to traffic control systems or rescue services for emergency purposes

## TECHNOLOGY



- 1 IRMA sensor (transmitter + receiver)
- 2 Distance
- 3 Person/object

IRMA sensors work according to the time-of-flight principle. The sensors measure the distance to objects based on the time of flight. This produces meaningful 3D data, which can be evaluated reliably and fully automatically.

## TECHNICAL DATA

Dimensions (W × H × L, mm)	<b>M12: 211±2 × 62 × 32.3*</b> <b>RJ45: 192 × 62 × 50.2*</b>
Housing	<b>Die-cast aluminium housing, optical openings made from polycarbonate</b>
Protection class	<b>M12: IP65</b> <b>RJ45: IP20 (optionally IP41)*</b>
Interface / connection	<b>M12</b> • Ethernet M12 D-coded, 100 Mbit/s, IO M12 B-coded Power M12 A-coded <b>RJ45</b> • Ethernet RJ45 100 Mbit/s, IO, Power: Terminals
Type approvals	EN50155, ECE, CE, EN50121-3-2, EN45545-2, EMV-06
Vehicle integration / system architecture	<b>ITxPT, IBIS-IP (VDV 301), QIP, UIP retrofit</b>
Power supply	<b>24 V<sub>DC</sub></b> <b>POE (according to IEEE 802.3af: type 1, class 0)*</b>
Weight	<b>471 – 501 g</b>
Pixels	<b>76,800 pixels</b>
MTBF	<b>1.24 x 10<sup>6</sup> h</b>
Required outdoor lighting	<b>0 lux</b>
Installation height	<b>1.8 to 2.5 m</b>
Counting accuracy	<b>up to 99%*</b>
Inputs/outputs	<b>1 each*</b>

\* see product data sheet