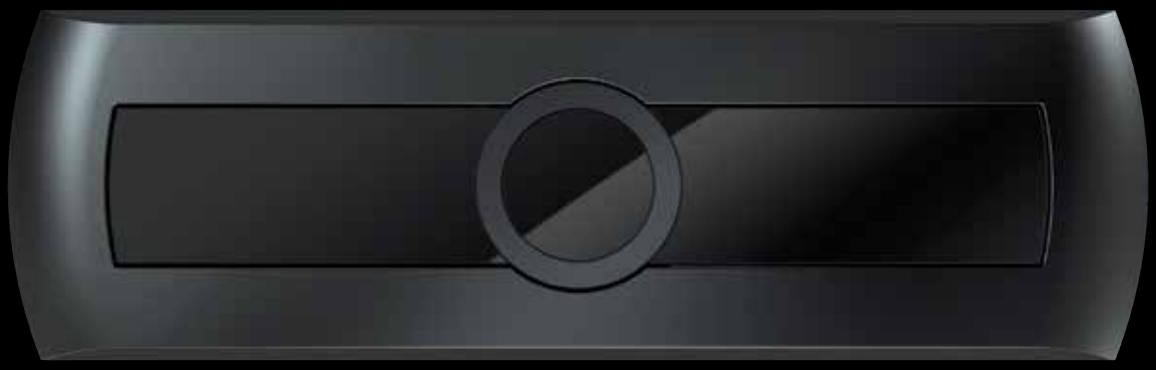
EN



IRMA Matrix UP

Proven sensor technology.
AI-assisted analysis. Secure networking.

The passenger counting sensor delivers reliable numbers for planning and operations. Developed for bus applications in public transportation, it is easy to install, digitally configurable, and can be flexibly integrated into existing vehicle systems.

OVERVIEW

- 98% counting accuracy
- PoE
- Passenger entry/ exit detection
- Web interface
- Door signal
- Secure firmware updates
- Supports IBIS-IP / ITxPT
- Cloud-compatible

PRECISE COUNTING DATA

- 3D head counts with AI-assisted analysis
- High level of accuracy even in crowded conditions and complex door configurations
- Reliable data for planning, operation and load analysis

SIMPLE INTEGRATION

- Easy installation thanks to integrated mounting system
- Digital configuration and quick commissioning
- Import/export of configurations when replacing devices and for standard equipment

SAFE AND ROBUST OPERATION

- Safe system operation thanks to signed firmware, secure updates and roll-based access
- Reliable recording even in dark surroundings through active infrared lighting
- Proven sensor design for use at vehicle doors

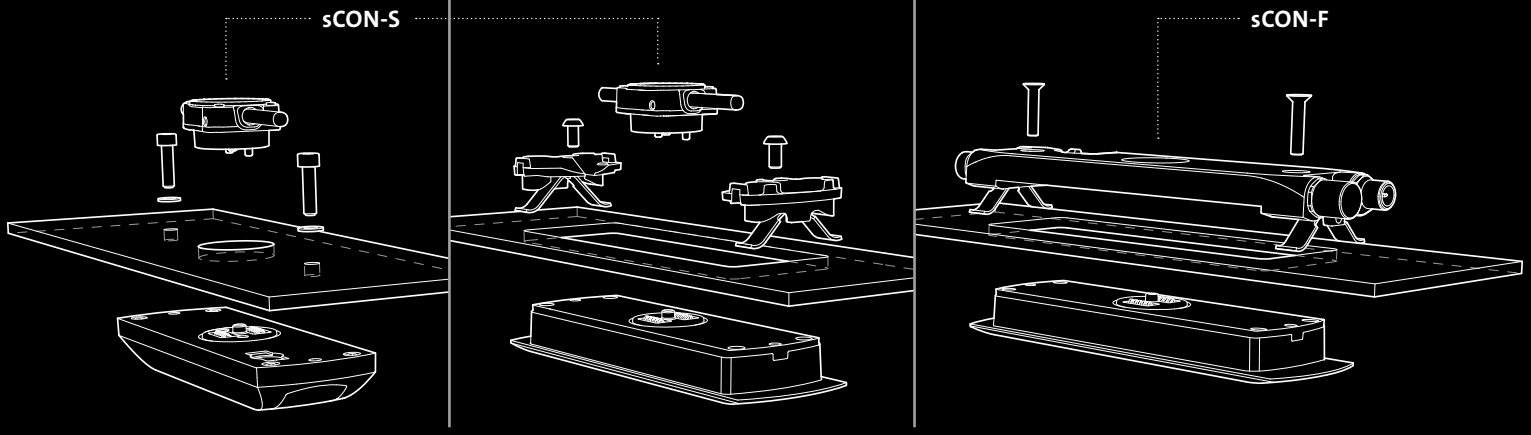
NETWORKED SYSTEM CONNECTION

- Flexible integration in vehicle, backend and platform systems
- Supports relevant standards like IBIS-IP, ITxPT and QIP
- Ready for connection to digital operation platforms

Surface-mounted variant with sCON-S
165.5 × 53 × 43 mm (L × W × H)

Recessed variant with sCON-S
188 × 58 × 42 mm (L × W × H)

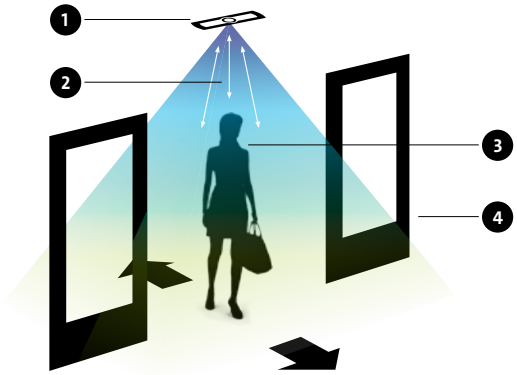
Recessed variant with sCON-F
222 × 58 × 35 mm (L × W × H)



APPLICATIONS

- Passenger load detection in real-time
- Evaluation of the number of entries and exits
- Effective passenger control with up-to-date load data
- Transmission of passenger load data to traffic management systems or emergency services
- Demand-based control of fleet use
- Optimisation of lines, frequency and routes
- Vehicle design according to passenger requirements
- Comparison of passenger volume with ticket sales
- Precise revenue sharing based on the transport service provided

TECHNOLOGY



1. IRMA sensor (transmitter + receiver)
2. Distance
3. Person/object
4. Vehicle door

IRMA sensors work according to the time-of-flight principle: Based on the travel time of emitted light pulses, the distance to the person is measured and used to create precise 3D data. This data is processed fully automatically and reliably using intelligent analysis.

TECHNICAL DATA

Dimensions (L × W × H, mm)		**Surface-mounted version: 165.5 × 53 × 22** **Recessed version: 188 × 58 × 22**
Housing		**Aluminium die-cast housing, optical openings made from polycarbonate**
Protection class		**with sCON-S: IP65** **with sCON-F: IP54**
Interface / connection	Ethernet Power Input	**• M12 D-coded, 100 Mbit/s** **• M12 A-coded, or open ends, or PoE** **• M12 A-coded, or open ends**
Conformity	CE EMC Fire protection Cybersecurity	**RoHS, EMC** **ECE R10** **ECE R118** **IEC 62443-4-2**
Vehicle integration / system architecture		**ITxPT, IBIS-IP (VDV 301), QIP, UIP Retrofit, Mobility Management Platform**
Power supply		**• with sCON-S-ETH or sCON-F-ETH: 24 V_{DC}** **• with sCON-F-POE: PoE**
Weight		**471 – 501 g**
Pixels		**500 pixels**
MTBF		**1,240,000 h**
Minimum lighting (ambient light)		**0 lux**
Installation height		**1.8 to 2.4 m**
Counting accuracy		**up to 98%**
Input		**1 (not with PoE)**

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