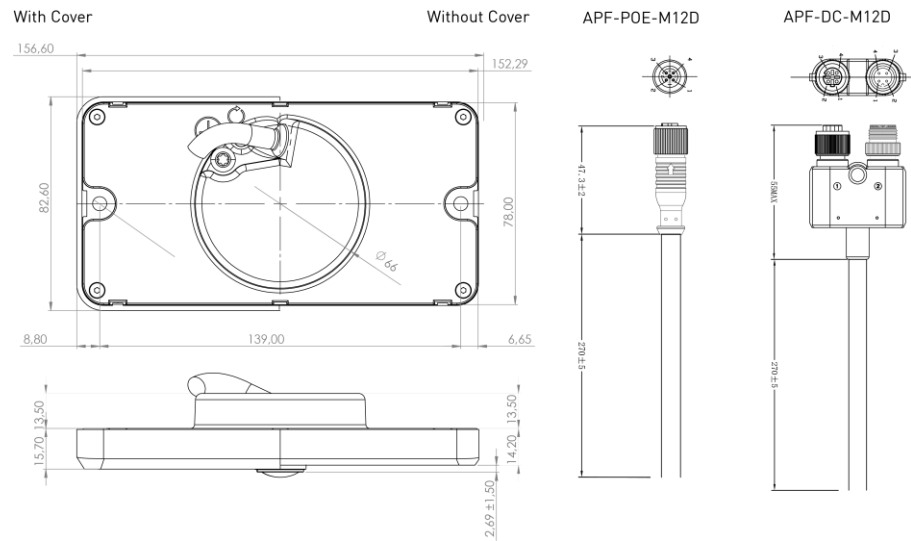




General Description

Technology	Vision based / Embedded computing with artificial intelligence (AI)
Environment	Public transport vehicles
Sensor models	APF-POE-M12D APF-DC-M12D
Accuracy	Up to 99%. Can meet VDV 457-2 accuracy requirements.
AI-powered detection	Passengers, adult and children differentiation, bicycles, wheelchairs, strollers, anonymous origin-destination insights, visual detection of the door opening status
Data storage	Up to 3 years (depending on the number of counters and/or stops per day)
Data privacy	4 privacy modes / all processing on-device / only text data is transmitted
Integration	ITxPT, IBIS-IP (VDV-301), API with Swagger documentation, Xovis HUB remote connection
Service life	Designed for up to 15 years
Target failure rate	< 2000 FIT, 500'000h MTBF (TBC, unvalidated)

Electrical Characteristics

Power supply	APF-POE-M12D: - Power over Ethernet, Class 0, (IEEE 802.3af, nominal 48 V) APF-DC-M12D: - Nominal 12 V DC ... 36 V DC
Power consumption	Typical 8 W, maximum 11 W

Physical Specification	
Weight (incl. cover)	Approx. 350 g / 0.77 lb
Dimensions	With cover: 157 x 83 x 29 mm + 2 mm lens / 6.2 x 3.3 x 1.1 in + 0.1 in lens (LxWxH); Without cover: 152 x 78 x 28 mm + 3 mm lens / 6.0 x 3.1 x 1.1 in + 0.1 in lens (LxWxH); Height of protruded part in semi-recessed mount position: 15.7 mm / 0.6 in
Housing	Aluminum
Color	Sensor: black (RAL 9005) Cover: white (RAL9003), grey RAL7035 or black (RAL7021)

Physical Interfaces and Connections	
Ethernet	IEEE 802.3u 100 MBit/s
APF-POE-M12D	M12, D-coded, female connector (Ethernet and PoE)
APF-DC-M12D	M12, D-coded, female connector (Ethernet) M12, A-coded, male, 4-pin connector (DC power supply)
Cable length	0.3 m / 1 ft
Requirements for attached cables	Up to 99 m / 324 ft, min. Cat-6 (shielded) or higher. Use maximum AWG23 for installation cables and AWG26 for patch cables.
Grounding	Sensor grounding is mandatory.

Environmental Conditions	
Required illumination	Minimum 2 lux
Operating temperature	-25°C to +55 °C / -13 °F to +131 °F (Criterion A, OT3, EN 50155) -40°C to +70 °C / -40 °F to +158 °F (Criterion B, OT3, EN 50155)
Storage temperature	-40 °C to +85 °C / -40 °F to +185 °F
Relative humidity	20 % to 95 % (non-condensing)
Ingress protection	IP65 (acc. to IEC 60529)

Network Interfaces	
Supported protocols	IPv6, IPv4, DHCP, HTTPS, MQTT, IEEE 802.1x and password-protected configuration access
Data protocols	REST API, ITxPT, IBIS-IP (VDV-301)

Installation / Mounting	
Mounting options	Semi-recessed mount through a 68 to 76 mm / 2.7 to 3 in hole. Different mounting options available.
Mounting height	1.90 m to 3.50 m / 6.23 ft to 11.48 ft
Mounting angle (tilt)	+/-15° in x- and y-axis
Coverable door width	1.60 m – 6.00 m / 5.25 ft – 19.69 ft (depends on installation height)

Compliance	
Legal compliance	The product and Xovis fulfil all legal compliance requirements for the European Union, United Kingdom, USA, and Canada. Compliance documentation for other countries on request.
Railway	EN 50155:2021 ÖBB Regelwerk 50.02.01:2022 European Train Interoperability Specifications TSI LOC & PAS Train radio directives EMV06 Ausgabe 2.0 (2019) of the Eisenbahnbundesamt (Germany)
Product safety	IEC 62368-1:2023 EN IEC 62368-1:2024+A11:2024
Fire safety	EN45545-2, Hazard Level 3 UNECE R118 FMVSS 302 UL94 V-0
EMC	EU EMC compliance (2014/30/EU (EMV), EN 50121-3-2:2016+A1:2019, EN 50498) EMC conformity UN ECE R10 (E1) for road vehicles
Privacy	4 privacy levels for GDPR compliant operation, role-based access control
Others	EU ROHS compliance (2011/65/EU, EN IEC 63000) REACH Regulation (EC) No 1907/2006 CE, EN 50498:2010

Cyber Security	
Secure boot	Yes
Hardware security features	Basic crypto module, true random number generator, memory scrambling
Software architecture	Operating system and core application software are fully access-protected. The only way to access this part of the software is the documented REST API Isolated edge runtime for custom applications and add-ons
Applied cyber security frameworks	IEC 62443-4-2, Level 2 OWASP DevSecOps Maturity Model (DSOMM) Level 2 Certified ISMS according ISO 27001
Software update support	Security updates are provided for the duration of product life or at least until December 2036 (the longer period applies)

APF Technical Datasheet

APF ordering information		
Model	Description	Variants
APF-POE-M12D	APF sensor, PoE version, front cover included	White cover: APF-POE-M12D.w Grey cover: APF-POE-M12D.g Black cover: APF-POE-M12D.b
APF-DC-M12D	APF sensor, 12-36 V DC version, front cover included	White cover: APF-DC-M12D.w Grey cover: APF-DC-M12D.g Black cover: APF-DC-M12D.b

Accessories ordering information		
Model	Description	Variants
PA-APF-SM	APF Surface Mount Adapter	White: PA-APF-SM.w Grey: PA-APF-SM.g Black: PA-APF-SM.b
PA-APF-TM	APF Tilt Mount Adapter	White: PA-APF-TM.w Grey: PA-APF-TM.g Black: PA-APF-TM.b
<i>Coming soon</i>	APF Flush Mount	<i>Coming soon</i>
PA-APF-FC	APF Front Cover	White: PA-APF-FC.w Grey: PA-APF-FC.g Black: PA-APF-FC.b

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