



VISUALCOUNTER TRANSIT-TOF

PASSENGER COUNTING IN PUBLIC TRANSPORT



VISUALCOUNTER.TRANSIT-TOF system provides bidirectional counting of passengers on public transport, allowing you to register and analyse passenger flow data in a reliable way

LATEST GENERATION OF TOF (TIME OF FLIGHT) TECHNOLOGY

Innovative time of flight technology providing native 3D image with high resolution and accuracy based on active IR illumination

POWERFUL FUNCTIONALITIES FOR PASSENGER FLOW MANAGEMENT

- Passenger counting (adults/kids)
- Smart object counting (bicycles, wheelchairs, baby carts,...)
- Passenger seat monitoring
- PRM area monitoring

MAXIMUM RELIABILITY WITH AI ALGORITHMS

Artificial Intelligence algorithms based on neural networks highly reliable in any situation and scenario of light changes, weather and passenger flow density (>98% accuracy)

API-DRIVEN PASSENGER COUNTING SYSTEM

Certified ITxPT and easy data integration with industry standards as REST, JSON and VDV 457-2

DESIGN ADAPTED TO THE VEHICLE

Installed indoor over the doors, in a non-intrusive and discrete way, with different housings, anchorages and trim tailored to each client

INTEGRATION WITH EXTERNAL SYSTEMS/SENSORS

Optocoupled digital I/O for external integration with other systems

EASY INSTALLATION AND MINIMUM MAINTENANCE

A single device per door. Easy plug&play installation without complex configurations or settings to maintain



OPTIMISATION OF PUBLIC TRANSPORT OPERATIONS



Flow management of passengers in different vehicles, doors, routes and stops



Public transport service optimisation (routes, transit frequency)



Optimisation of vehicle use (number and size)



Passenger occupation management of the vehicle over its entire journey



Improvement in fraud management and optimisation of the inspection personnel



Measurement of advertising value of stops, posters and in-vehicle video channels



PASSENGER SMART COUNTING
(adults/kids, bicycles, wheelchairs, babycars)



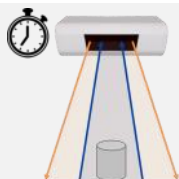
VC.TRANSIT.TOF INSTALLATION



PRM AREA AND PASSENGER SEAT MONITORING

1. Time of Flight Technology

Time of Flight (TOF) technology allows the estimation of the distances of objects by calculating the time between when an infrared light beam is emitted and when the reflection of the ray is received



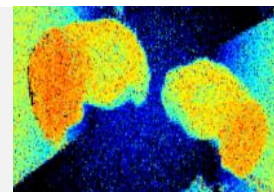
2. Obtaining 3D images

Through the use of Time of Flight (TOF) sensors with the highest resolution we can obtain native 3D images of the surroundings, with precise information about the distance of each object from the sensor



3. Image processing

The 3D images are processed using the latest AI algorithms based on neural networks to determine with the highest accuracy the number of passengers who enter and leave through a door



TECHNICAL SPECIFICATIONS

Model / Technology	VC.TRANSIT-TOF / Time of Flight
Voltage / Power consumption	<ul style="list-style-type: none"> 9-36 VDC (9W max.) PoE (Power Over Ethernet) - IEEE 802.3af compatible
Communications	<ul style="list-style-type: none"> TCP/IP Ethernet (IPv4, HTTP, HTTPS, 802.1x, DNS, TCP, UDP, DHCP, SSH) RS-485 Serial
Connectors	<ul style="list-style-type: none"> 18 pin connector: <i>Serial RS-485 communications</i> — I/O (door sensor) — DC Power M12 4p D-Coded (TCP/IP Ethernet communications – PoE)
Illumination requirements	0 LUX (complete darkness)
Internal clock / Memory / Resolution / I-O	Available / Up to 10k stop events / > 300k pixels / 1 input— 1 output optocoupled
Object classification	Persons (adults/kids) / wheelchairs / babycars / bicycles
Working height/width ranges	1700 mm - 2500 mm / Door width up to 1600 mm
Dimensions / Weight	345g / 142 mm x 65mm x 32 mm (standard housing)
Housing and protection	Aluminum housing / IP code: IP55
MTBF	> 1.900.000 h
Environmental parameters	<ul style="list-style-type: none"> ROHS Range of ambient operating temperature -25°C / +70°C Range of ambient storage temperature -40°C / +70°C Relative humidity 1% / 99%
Design standards	<ul style="list-style-type: none"> Safety of Information Technology Equipment - EN 62368-1:2014 + AC:2015 + A11:2017 EMC Directives - IEC/EN 55022 & CISPR 22 ed 6 (2008) & IEC/EN 61000-4-2/3/4/6/8 Automotive EMC Standards - According ECE ONU R10: ISO 11452-2 & ISO 7637-2 & CISPR 25 Ed.2 (2002) + A1 (2004) Railway Application Standards - EN 50155:2017 Railway EMC Standards: EN 50121-3-2:2015 / EN 50155:2017 Railway Shocks and vibrations - EN 61373 / EN 50155:2007 + AC:2010 + AC:2012 Automotive Shocks and vibrations - EN 60721-3-5 Railway Environmental Tests - EN 60068-2-1/2/30/11 Railway Fire behavior test of materials and components: EN 45545-2:2013 Burning behavior of materials in motor vehicles - According ECE ONU R118

VISUALCOUNTER AROUND THE WORLD

- More than 80.000 counting devices installed
- Present in 80 countries on all five continents
- Reference customers in each market niche
- Solutions tailored to each country and sector
- Developing, manufacturing and marketing own counting people solutions



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