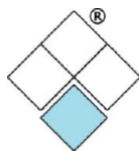


# Bus & Tramway

Wireless communication solutions  
for connected vehicles



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**ACKSYS**  
COMMUNICATIONS & SYSTEMS





## ... for an optimal quality of service

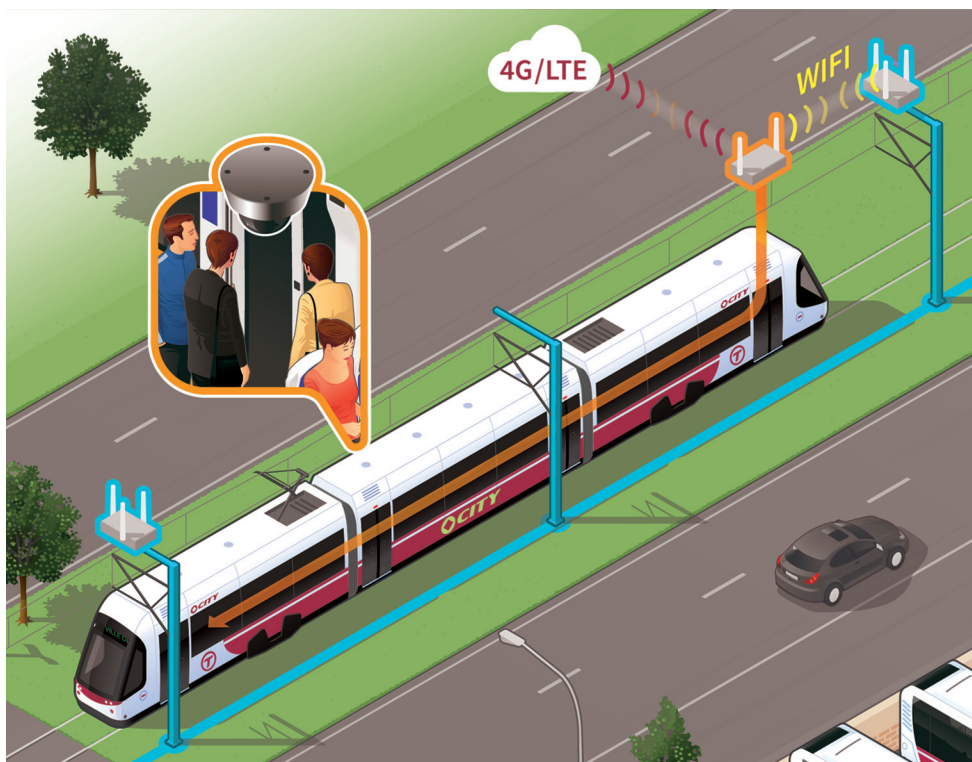
### > CONNECTED VEHICLES: ENSURING QUALITY AND CONTINUITY OF SERVICE

ACKSYS devices offer 4G/WiFi roaming capabilities based on the available coverage.

For areas with poor or even without 4G coverage or when cellular communications costs become prohibitive, ACKSYS is able to propose an alternative by creating highly-available wireless network

infrastructures thanks to its very high speed multi-radios access points.

To maintain uninterrupted connectivity of services on board and to enable real time communication in motion (CCTV, preventive maintenance ...), ACKSYS WiFi equipment (access points, clients, routers and repeaters) offer advanced fast roaming functions (<30ms) and very high speed radio throughput (802.11ac) ensuring efficient and seamless connections.



“  
ACKSYS offers devices tailored for both **ground**  
and **onboard** use  
”

## → SIMPLIFIED DEPLOYMENT

- WaveManager : deployment & centralized management software
- Streams mutualization : a single embedded router, accessible to all the vehicle's equipment
- Identical IP addressing scheme in all vehicles without interconnection risks
- Mesh networks and multi-radios access points : simplify the deployment of a WiFi coverage at the depot or along the track

## → MOBILITY






- High speed data transfer in motion (fast roaming <30 ms)
- Seamless 4G LTE<> WiFi roaming (mobile IP)

## → ADAPTED DESIGN FOR BUS, TRAMWAY AND GROUND USE

- Embedded and outdoor rugged solutions
- Extended operating temperature (up to -40°C and + 75°C depending on models)
- RJ45 or M12 connectors
- E-marked devices (bus)
- EN50155 (IEC61373)/EN50121-3-2 compliant (tram)
- EN61373 (shocks/vibrations)



## Cellular routers & WiFi access points for public transportation

	 <b>AirLink</b>	 <b>NEW</b> <b>AirBox</b>	 <b>WLn-xROAD</b>	 <b>NEW</b> <b>RuggedAir</b>	 <b>RailBox</b>
<b>Function</b>	WiFi access point, client, router, Mesh	Cellular router + all-in-one WiFi device	WiFi access point, client, router, Mesh	WiFi access point, client, router, Mesh	Cellular router + all-in-one WiFi device
<b>Recommended for</b>	BUS	BUS	BUS - GROUND	TRAM - GROUND	TRAM - GROUND
<b>WiFi interface</b>	802.11n 2.4 / 5 GHz	WiFi 1 : 802.11n WiFi 2* : 802.11ac 2.4 / 5 GHz	802.11n 2.4 / 5 GHz	802.11ac 2.4 / 5 GHz	WiFi 1 : 802.11n or ac WiFi 2* : 802.11n or ac 2.4 / 5 GHz
<b>Cellular interface</b>	-	2G / 3G / 4G LTE* Dual SIM Multi-constellation GNSS	-	-	2G / 3G / 4G LTE* Dual SIM Multi-constellation GNSS
TECHNICAL CHARACTERISTICS					
<b>Ethernet interface</b>	1 x 10/100/1000 RJ45	2 x 10/100/1000 RJ45	1 x 10/100/1000 RJ45 (or M12)	2 x 10/100/1000 M12	2 x 10/100/1000 M12
<b>I/O</b>	-	2 isolated inputs 2 isolated outputs	-	1 isolated input 1 isolated output	1 isolated input 1 isolated output
<b>Dimensions (mm)</b>	127 x 78 x 24	141.2 x 99 x 35	185 x 64 x 35	80 x 175 x 57	80 x 175 x 57
<b>Power supply</b>	9 to 48 VDC - PoE	Redundant 9 to 48 VDC	9 to 36 VDC	Redundant - isolated 9 to 48 VDC - PoE	Redundant - isolated 24 to 110 VDC or PoE +
<b>Environment</b> Operating temperature IP rating	-20°C to +60°C IP30	-20°C to +60°C IP30	-25°C to +70°C IP66	-40°C to +75°C IP66	-25°C to +70°C Or -40°C to +75°C IP66
FUNCTIONALITIES					
<b>Roaming</b>	< 30 ms	WiFi < 30 ms Roaming 4G <> WiFi	< 30 ms	< 30 ms	WiFi < 30 ms Roaming 4G <> WiFi
<b>Security</b>	Firewall, DoS, https, MAC filtering, WPA/WPA2-Personal & Enterprise (IEEE 802.1X/RADIUS), WEP, tunnels L2 (GRE), VPN (OpenVPN), SNMP V3				
<b>Ethernet routing</b>	Multicast (PIM), IP redundancy (VRRP), static routes, NAT router, router				
<b>Ethernet networking</b>	Frames filtering, bridging, repeater, STP/RSTP, VLAN, DHCP (server & client), DNS relay				
<b>Administration</b>	http, https, SNMP agent (V1, V2C, V3), WaveManager administration software				
<b>C-Key**</b>	-	-	-	✓	✓

\* Optional 2nd radio interface (WiFi or cellular)

\*\* Hardened memory key (configuration backup)

# Why choose ACKSYS ?

## > RELIABILITY AND ROBUSTNESS

ACKSYS' products are designed to be used in harsh environment, this is why their manufacturing components are carefully selected, controlled and submitted to endurance tests. They come with a 5-year or lifetime warranty.

## > LONG LASTING PRODUCTS

In order to provide long lasting solutions to its customers, ACKSYS works closely with its suppliers to foresee any eventual obsolete products and thus back-up its product line to avoid any stock rupture. ACKSYS also pay attention to develop products compatible with existing solutions.

## > RELEVANT SOLUTIONS

ACKSYS develops tailored solutions designed to fit its customers' specific business needs or unique application environment and is also able to adapt its products upon request. All ACKSYS' products are compliant with the standards in the various targeted markets.

## > CUSTOMER SERVICE COMMITMENT

ACKSYS has developed a solid pre-sales and after-sales process to ensure that customers receive the highest level of support at every stage of their projects. ACKSYS commits to provide state-of-the-art technology, products and training to keep its customers, distributors and VARs in the forefront of the communication age.

**ACKSYS**  
COMMUNICATIONS & SYSTEMS

Since 1984, ACKSYS Communications & Systems has acquired a strong know-how in designing and manufacturing industrial data communication solutions (WLAN / LAN / serial).

Its expertise and high quality standards allows it to meet the most severe requirements in transportation (rail & road), industrial (M2M IIoT, automation), military (marine, land, air), aeronautics, mining (underground and above ground), oil & gas and environment (renewable energy, water, waste water).

Its inbuilt engineering, technical and commercial teams are able to meet accurately the expectations of its customers and assist them from the definition of their needs to the deployment. Thanks to a qualified and structured distribution network, ACKSYS is present on the five continents and can therefore meet any industrial application need, any time.

