

A Siemens Avenio tram is shown in a city street, surrounded by pedestrians. The tram is white with a blue stripe and has "1 Avenio" displayed on its front. The street is paved with cobblestones, and there are buildings and a tram stop in the background. The Siemens logo is in the top right corner.

**SIEMENS**

**What makes urban mobility more sustainable and economical?**

**Avenio – Fits your City.**

The new 100% low-floor tram for your city.

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## Avenio: An important element in urban mobility of the future



### Mobility as driver in developing cities

- Trams provide an optimal possibility of having mobility based on CO<sub>2</sub> neutral energy, for example from wind turbines.
  - Trams ensure sustainable access to fast and reliable mobility of high quality.
  - Trams provide new possibilities for creating attractive cityscape.
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- ➔ **Trams create basis for attracting investments in private housing as well as within companies in your city.**
  - ➔ **Trams are able to actually move people from individual to public transport.**

## Avenio: Made for every infrastructure and every tram system



### Light, quiet and comfortable

- Thanks to the unique vehicle concept, the axle loads are distributed evenly; Avenio has the lowest axle loads of all 100% low-floor trams.
  - Track guidance is optimal, with good directional stability and smooth movement on curves.
- ➔ **Avenio reduces impact on infrastructure and considerably increases the service life of wheels, with sufficient weight reserves.**
- ➔ **Avenio provides the most comfortable ride for driver and passengers; people who live near the tracks will also be pleased by the low noise emissions.**



## Avenio: Made for every need and for more passengers



### The ultimate in passenger capacity

- The unique vehicle concept allows for the longest tram lengths of all 100% low-floor trams. Up to 540 passengers can be transported with only one driver, or up to 700 passengers at peak times.
- Flexible capacity of 2 to 8 modules, 18 to 72 meters long.
- Double doors on up to 30% of the vehicle length, also directly at the ends of the vehicle

➔ **Highest capacity and best passenger flow resulting in shorter round-trip times, leaner rolling stock inventories and lower operating costs.**

## Avenio: Made for your cityscape and your budget



### Attractive design meets lifelong efficiency

- Attractive, modern design, with bright, transparent interior
- If desired, Avenio can be operated without a contact line for up to 2.5 kilometers, for an even more attractive cityscape.
- The unique vehicle concept together with the sophisticated design ensure low wear and tear, which means less maintenance costs.

➔ **Appealing to passengers, an enrichment for the city.**

➔ **High revenue and low costs guarantee maximum benefits.**



## Avenio: The window to your city



### Passenger comfort thanks to spaciousness and unrestricted views

- Large full-glass doors and panoramic windows
  - Spacious doorway areas
  - Wide, transparent articulation passages
  - No steps, front to back
  - Glass partition to driver's cab allows passengers to see the route ahead
  - 16 seats in the bogie area
- ➔ Few constrictions, nothing to stumble on and no dead-ends at the ends of the vehicle
  - ➔ Transparency gives passengers a sense of safety and comfort
  - ➔ More seats – more passengers

## Avenio: Also better for the environment



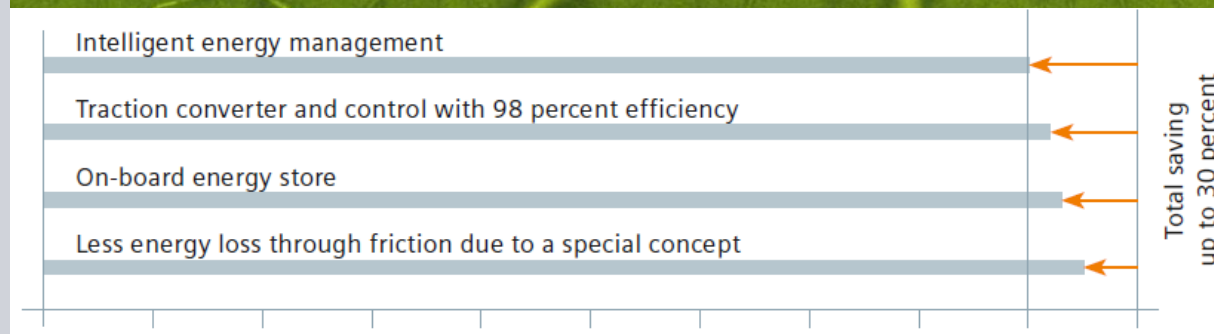
### Avenio makes your city greener

- The unique Avenio concept minimizes track noise and jolting, even on older tracks.
- The Avenio brakes purely electrical, all the way to full stop, with no abrasion of brake pads and no screeching. That reduces fine particulates and noise emissions.
- Avenio is the quietest and cleanest tram, energy-saving drive system and brake energy storage system included.

- ➔ **Beneficial for passengers and operators, residents and the environment.**
- ➔ **Avenio improves your city's eco-balance.**



## Avenio: An environmental bonus



### Avenio turns technology into green value

- Avenio reduces energy use by up to 30 percent through the combination of different standard and optional components.

➔ **An efficient use of energy helps significantly reduce the CO<sub>2</sub> footprint of your city.**





## Avenio: The synthesis of experience and innovation



### Proven and reliable right from the first day

- Siemens invented the electric tram in Berlin in 1881
- Roughly 2,300 low-floor trams have been delivered to customers
- 20 years of expertise in the 100% low-floor market
- Extensive field study of more than 20 tram systems

➔ **Sophisticated technology, proven components, directed improvements**

➔ **The best of technology and experience**

➔ **Highest reliability right from the first day, for the entire life of the vehicle.**

## Avenio: The result of almost 130 years of experience



- Single car
- No overhead line

**Berlin 1881:**  
**World's first tram**



- Single-articulation vehicle
- More than 500 units (for Munich, Nuremberg, Frankfurt/M, other cities)

**1992 – 2000**  
**GT trams**



- Multi-articulation vehicle
- More than 550 units (for Bern, Amsterdam, Melbourne, other cities)

**1996 – 2010**  
**Combino**



- Single-articulation vehicle
- 64 units (Lisbon, Budapest)

**2005 – 2009**  
**Combino Plus**



- Single-articulation vehicle
- Optimal synthesis of the strengths of multi-articulation and single-articulation concepts

**2010**  
**Avenio**



## Avenio: The unique vehicle concept

### Strengths of the single-articulation concept

- Optimal door arrangement
- High riding comfort
- Low wear and tear



### Strengths of the multi-articulation concept

- Modular system design
- Innovative chassis with longitudinal drive



+

Experience from  
Combino modification  
measures

Current market  
requirements and  
standards

Directed innovations

=

**Avenio**



Avenio: Modular vehicle concept allows many possible applications

Length

18 m



27 m



36 m



45 m



54 m



63 m



72 m



Number of passengers  
for different vehicle widths\*:

| 2.3 m | 2.4 m | 2.65 m |
|-------|-------|--------|
| 103   | 109   | 122    |
| 160   | 172   | 192    |
| 222   | 236   | 264    |
| 279   | 296   | 331    |
| 340   | 362   | 404    |
| 396   | 420   | 470    |
| 457   | 486   | 542    |

\* Standing room and seats  
Bi-directional vehicle, standing room 4 persons per m<sup>2</sup>

Basic technical data

- Low-floor proportion: 100%
- Boarding height: 300 or 350 mm
- Floor height: 350/435 mm
- Track gauge: 1000 and 1435 mm
- Max. axle load: 10.5 t
- Tram voltage:  
600/750/1500 V DC
- Drive power:  
240 kW per powered bogie
- Motorization: 50% to 100%
- Max. speed: 80 km/h



## Avenio: Maximum benefits for operators, passengers and the environment

**Avenio: The synthesis of experience and innovation**



**Proven and reliable from the first day on**

**Avenio: Made for every infrastructure and every tram system**



**Light, quiet and comfortable**

**Avenio: Made for every need and for more passengers**



**The ultimate in passenger capacity**

**Avenio: Made for your cityscape and your budget**



**Design meets lifelong economical operation**



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**Thank you for your attention!**

**Avenio – Fits YOUR city.**

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