



LOW-FLOOR LIGHT RAIL VEHICLES

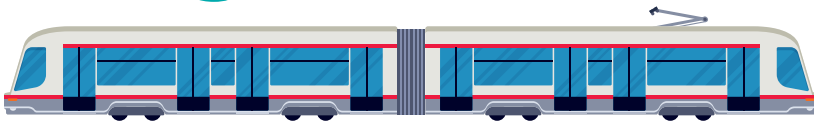
**Moving with ease.**  
Designing with style.

**SIEMENS**





**1 light rail** has the ability to replace **= 920 cars**  
off the road



## Continue to strengthen city cores

### Public transportation is getting back to normal.

The American Public Transportation Association (APTA) released their 2023 Public Transit Rideship report showing that public transportation reached 79% of pre-pandemic levels. “Even though workers in many cities continue to work from home, at least on a part-time basis, APTA is seeing steady growth in ridership and is optimistic those trends will continue. As the latest data shows, public transportation continues to move people and shape the future of our communities” – APTA President and CEO Paul P. Skoutelas.

Many of today’s younger professionals want to live and work in vibrant city centers. More cities are reclaiming their centers by encouraging more transportation and development of areas that have lain dormant. Cities are working to strengthen their cores and revive a sense of community in downtown areas again.

## Economic driver

### Light rail has long been known to be a strong economic driver.

As seen in other cities, installation of rail tracks spurs economic development. In Portland, streetcars have helped bring development of some 140 real estate projects worth \$3.5 billion, leading to an approximately 50 percent increase in land values. Charlotte has seen a \$1.6 billion economic impact along its Lynx Blue Line. Minneapolis’ new Green Line has seen more than \$1.2 billion in development along the Central Corridor LRT line even before its revenue service began.

## A cleaner, greener way to travel

### Reduced traffic congestion translates into lower levels of pollution and a higher quality of life.

We are not only building lower emission transportation solutions but also using renewable energy and sustainable manufacturing processes at our Sacramento, Calif. plant. An all-round environmentally friendly design, the low-floor light rail vehicles have a direct correlation between the light-weight design, energy consumption and operating costs.



## Offering tailored service

### Efficiency counts – everywhere in the United States.

As an operator, you are completely focused on the business of service and transportation. You not only need easy-to-maintain vehicles, but an expert service partner.

Effective operations require maximum availability, which can only be ensured through service and maintenance, precisely tailored to your needs. Siemens Mobility Customer Services and maintenance programs will support all the operations and service plans your business requires. After all, putting great things in motion means having reliable vehicles available – at all times.

# The S700

## Accessible. Reliable. Efficient.

### Modular Design Fits Your City

The S700 maintains the many proven and reliable aspects of the S70. The technological innovations throughout the new vehicle design and an innovative open low-floor configuration makes it one of the most accessible vehicles of its kind in today's market. The end-to-end low-floor access for all passengers including those in the ADA community and better sight-lines for security allows for noticeably improved passenger flow and comfort, safety and efficiency.

### Reliability

The S700 has proven reliable in several demanding climates from Houston to Minneapolis, Phoenix to Seattle. A robust climate control system ensures customer comfort across a wide range of temperatures and humidity levels.



### Made for America

One thing that makes rail great for America is that we are putting people to work across the U.S. with our strong commitment to the Buy America requirement by continuously going above and beyond. The S700 far exceeds Buy America requirements with nearly 80% of the components being American-sourced.

### Maintenance

The S700 has been designed with ease of maintenance as a prime factor intended to minimize turnaround times. Several service-proven features are included in the S700 standard design that will make maintenance, cleaning and repairs easier. Simplified truck and tire maintenance reduce downtime.

### Smart Technology

An available remote diagnostic tool allows the end user access to view both active and stored vehicle fault data. Data is sent in real time when traveling on the alignment or at vehicle staging locations. On-board energy storage systems allows for seamless operation in any off-wire portions of the alignment.

### Hybrid-Battery Technology

The hybrid-battery technology can be provided by an on-board energy storage system (OESS) which is mounted to the underframe. This lithium battery system provides energy to the propulsion and auxiliary systems for off-wire operation of up to five miles. The OESS system can be re-charged during regular on-wire operations, through regenerative braking or from shop power mode.





# Keeping on track since 2004 – with more than 700 vehicles ordered in twelve cities across the U.S.

## **Atlanta, Ga.**

Atlanta's streetcar system marks the inauguration of Siemens Mobility's first U.S. built streetcar based on the service proven 70% low-floor LRV platform.

## **Charlotte, N.C.**

The LYNX Blue line is the only light rail system in the United States to run through a Convention Center. The first hybrid-battery streetcar connects the Historic West End through Center City Charlotte to the Elizabeth neighborhood.

## **Houston, Texas**

Ride on the 23 miles of rail to more than 100 dining and nightlife options, professional sports arenas, cultural institutions and the largest medical center in the world.

## **Minneapolis / St. Paul, Minn.**

Linking the St. Paul and Minneapolis downtown's with stops at the University of Minnesota and the State Capital as well as connecting with the Hiawatha line serving the Mall of America and Target Field.

## **Norfolk, Va.**

The Tide has spurred over \$500 million in transit-oriented development since the project began in 2007.

## **Orange County, Calif.**

The streetcar will serve the historic downtown Santa Ana and Civic Center which includes government offices, unique restaurants and shops, and a variety of community enrichment organizations.

## **Phoenix, Ariz.**

Valley Metro Rail tapped Siemens Mobility to build the new S700 LRV's to help meet growing ridership needs and the next expansion of the 26-mile rail line.

## **Portland, Ore.**

In 1998 the Westside light rail extension opened with North America's first fleet of low-floor vehicles from Siemens Mobility. An increase in ridership over the years prompted Portland to expand to nearly 60 miles of track and operate more than 100 LRV's.

## **Sacramento, Calif.**

After 35 years, RT is excited to introduce the new S700 low-floor LRV's to the city of Sacramento.

## **Salt Lake City, Utah**

Population growth, swelling congestion, and a successful bid to host the 2002 Winter Olympic Games landed SLC with its very own light rail system in 1999 with a base fleet of 23 Siemens Mobility vehicles.

## **Seattle, Wash.**

Sound Transit is adding 30 miles of new light rail to create about a 50-mile regional system and ordered over 160 new Siemens Mobility S700 LRV's.



Siemens has been a partner with MTS since 1980. Every light-rail car we have ever purchased – 244 of them – have been from Siemens. This partnership was extremely important to Paul (Jablonski) and it is partly responsible for the huge growth of the California-based manufacturer. The Siemens Mobility division now supplies rail vehicles all over the world.

**Sharon Cooney**, Metropolitan Transit System  
San Diego, Calif.







Photo by Sound Transit

## A Made for America mobility solution

The Siemens Mobility S700 LRV has been specially designed to meet the specific needs of Sound Transit and the Puget Sound region and to fit all commuters needs; whether it's a ride to the airport, a ride from your neighborhood to downtown or perhaps a ride to the big game. The S700 will be a fully-accessible, bicycle-friendly transportation option for all and will provide the Puget Sound region's passengers with a safe, comfortable ride that gets commuters to their destination reliably.





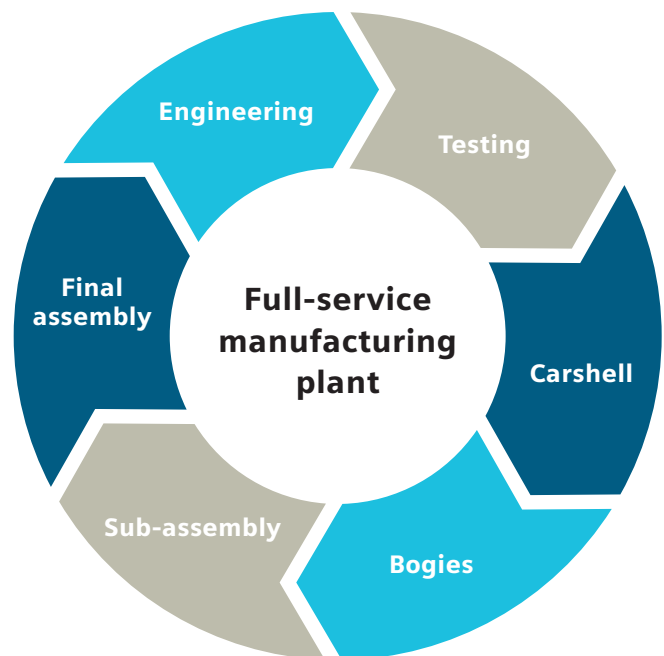
## MANUFACTURING IN NORTH AMERICA

# Moving cities forward with light rail vehicles for more than 40 years

Siemens Mobility has expertise in the areas of urban, commuter and long distance transportation. The Sacramento full-service manufacturing plant builds rolling stock from start to finish optimizing project management and quality.

With an industry-leading U.S. supply chain and dependable delivery, Siemens Mobility offers environmentally friendly, efficient and reliable rail vehicles.

From pre-installation to ongoing maintenance, Siemens Mobility Customer Services goes the extra mile to extend and enhance the service life of all rail vehicles.



- **87** suppliers in **27** states for CATS
- **97** suppliers in **28** states for Tri-Met



**Services to support**  
the life of your vehicle



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ATLANTA, GEORGIA

## S70 Streetcar

For the first time since 1949, Atlanta revitalized their streetcar project with a 2.62 mile system running along the streets of the downtown area. Atlanta's streetcar system marks the inauguration of Siemens Mobility's first U.S. built S70 Streetcar based on the service proven 70% low-floor light rail vehicle platform. With a fleet of four vehicles, these streetcars are complementary elements of the City's Connect Atlanta Plan to increase urban mobility, sustainable development and livability of the city of Atlanta.

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle streetcar is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of this streetcar has been designed to maximize passenger space, incorporating wide doorways and a predominately knee-to-back seating arrangement.

Each S70 Streetcar is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle. The vehicle is also equipped with four designated wheelchair spaces allowing for priority seating to disabled passengers and hydraulic height control system to permit level boarding and exiting of the vehicle.

The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

### Performance and Capacity

Maximum operational speed	35 mph	56 km/h
Service acceleration and deceleration	3.0 mph/s	1.34 m/s <sup>2</sup>
Emergency braking rate	5.0 mph/s	2.24 m/s <sup>2</sup>
Passenger capacity	60 seats 150 Passengers @ AW2 235 Passengers @ AW4 4 wheelchair spaces	
Maximum operational gradient	7%	
Motor power rating	174 hp x 4	130 kW x 4
Catenary supply voltage	750 Vdc	

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To maximize passenger comfort, each vehicle is equipped with two roof-mounted HVAC units per LRV.

The streetcar utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior electronic destination signs, as well as interior and exterior surveillance system for increased passenger safety.

Each streetcar is electrically powered from an overhead catenary system (OCS) and for Atlanta operates at speeds up to 35 mph while carrying up to 195 passengers in each vehicle. These streetcars remove automobiles off the road, in turn helping cities decrease their CO2 emissions.



Vehicle Dimensions and Weight

Length over anticlimbers	79.1 ft	24110 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down)	12.6 ft	3840 mm
Maximum pantograph height (up to)	23 ft	7010 mm
Vehicle empty weight	96,500 lbs	43700 kg
High-floor section above TOR	2.2 ft (with 1 step plus slight ramp)	670 mm
Low-floor section above TOR	1.2 ft (threshold)	356 mm (threshold)
Minimum turning radius (standard)	82 ft	25 m
Minimum turning radius (option)	59 ft	18 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks)	6.2 ft	1900 mm
(center truck)	5.9 ft	1800 mm



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CHARLOTTE, NORTH CAROLINA

# S700 Streetcar

Charlotte Area Transit System tapped Siemens Mobility to build six S700 streetcars to help meet growing ridership and the next expansion of what will soon be a 10-mile rail line. Improving the riding experience, the streetcar has been specially designed to meet the particular needs of the Charlotte region. The S700 streetcar runs wireless through Tryon Street, the heart of Uptown maintaining a catenary free zone.

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle streetcar is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of the S700 maintains an open low-floor configuration, making it one of the most accessible vehicles of its kind in today's market. The end-to-end

low-floor allows access for all passengers including those in the ADA community; better sightlines for security ensures improved passenger flow, comfort, safety and efficiency.

Each S700 streetcar is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle. The vehicle is also equipped with four designated wheelchair spaces allowing for priority seating to disabled passengers and

Performance and Capacity		
Maximum operational speed	25 mph	40 km/h
Service acceleration and deceleration	3.0 mphps	1.34 m/s <sup>2</sup>
Emergency braking rate	5.0 mphps	2.24 m/s <sup>2</sup>
Passenger capacity	56 seats 145 Passengers @ AW2 240 Passengers @ AW4 4 wheelchair spaces 2 bicycle racks	
Maximum operational gradient	7%	
Motor power rating	174 hp x 4	130 kW x 4
Catenary supply voltage	750 Vdc	

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doorway ramps to assist in the boarding and exiting of disabled passengers.

To accommodate Charlotte’s bicycle population, this S700 incorporates two dedicated bicycle areas located adjacent to each forward doorway. The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

To maximize passenger comfort, each vehicle is equipped with two roof-mounted HVAC units per streetcar.

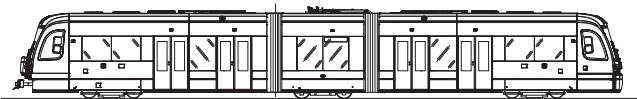
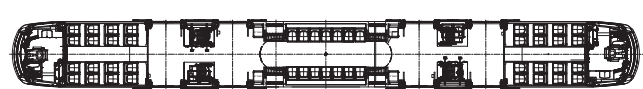
The S700 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior electronic destination signs, as well as interior and exterior surveillance system for increased passenger safety.

For Charlotte, each streetcar features a hybrid wireless technology that will allow the vehicle to run both on wire and off wire via an On Board Energy Storage



System (OESS) at speeds up to 25 mph, carrying close to 250 passengers in each vehicle. The OESS includes an expandable and modular design that can be updated as battery technology evolves.

When running on-wire, each streetcar is electrically powered from an overhead catenary system (OCS). These streetcars remove automobiles off the road, in turn helping cities decrease their CO2 emissions.



Vehicle Dimensions and Weight

Length over coupler	85.3 ft	25986 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down)	12.7 ft	3860 mm
Maximum pantograph height	22.5 ft	6850 mm
Vehicle empty weight	100,634 lbs	45743 kg
High-floor section above TOR	2.2 ft (with 1 step plus slight ramp)	670 mm
Low-floor section above TOR	1.2 ft (threshold) 1.3 ft (center)	356 mm (threshold) 381 mm (center)
Minimum turning radius	82 ft	25 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks)	6.2 ft	1900 mm
(center truck)	5.9 ft	1800 mm



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HOUSTON, TEXAS

## S700 Low-Floor Light Rail Vehicle

After the success of utilizing Siemens Mobility's S70 light rail vehicles (LRV) to transport people to the 2004 Super Bowl Game, METRO updated their fleet in 2019 to include 14 of the S700 low-floor light rail vehicles.

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle light rail vehicle is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of the S700 maintains an open low-floor configuration, making it one of the most accessible vehicles of its kind in today's market. The end-to-end low-floor allows access for all passengers including those in the ADA community; better sightlines for security ensures improved passenger flow, comfort, safety and efficiency.

Each S700 LRV is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle. The vehicle is also equipped with two designated wheelchair spaces allowing for priority seating to disabled passengers and hydraulic height control system to permit level boarding

### Performance and Capacity

Maximum operational speed	55 mph	88 km/h
Maximum allowable speed	59 mph	95 km/h
Service acceleration and deceleration	3.0 mph/s	1.34 m/s <sup>2</sup>
Emergency braking rate	4.9 mph/s	2.18 m/s <sup>2</sup>
Passenger capacity	60 seats 180 Passengers @ AW2 295 Passengers @ AW4 2 wheelchair spaces or bicycle areas	
Maximum operational gradient	7%	
Motor power rating	174 hp x 4	130 kW x 4
Catenary supply voltage	600 Vdc	

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and exiting of the vehicle. The wheelchair spaces could also accommodate bicycles if necessary.

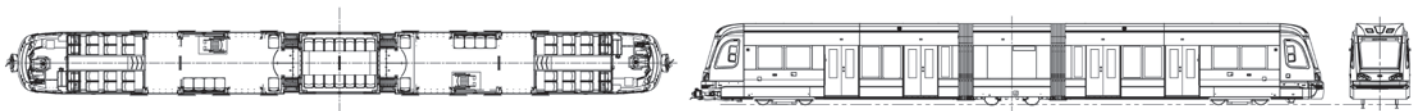
The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

To maximize passenger comfort, each vehicle is equipped with two roof-mounted HVAC units per LRV.

The S700 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior

electronic destination signs, as well as interior and exterior surveillance system for increased passenger safety.

Each LRV is electrically powered from an overhead catenary system (OCS) and for Houston operates at speeds up to 55 mph, carrying up to 225 passengers in each vehicle with the ability to operate in multiple vehicle consists (up to four). These light rail vehicles remove automobiles off the road, in turn helping cities decrease their CO2 emissions.



Vehicle Dimensions and Weight

Length over coupler	94.3 ft	28740 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down)	12.3 ft	3750 mm
Maximum pantograph height (up to)	23 ft	7010 mm
Vehicle empty weight	98,700 lbs	44773 kg
High-floor section above TOR	2.2 ft (with 1 step plus slight ramp)	670 mm
Low-floor section above TOR	1.2 ft (threshold) 1.3 ft (center)	356 mm (threshold) 396 mm (center)
Minimum turning radius	82 ft	25 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks)	6.2 ft	1900 mm
(center truck)	5.9 ft	1800 mm



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MINNEAPOLIS/ST. PAUL, MINNESOTA

## S700 Low-Floor Light Rail Vehicle

The Twin Cities opened their second light rail project with a fleet of 64 Siemens Mobility S70 vehicles running on 11 miles of track and linking downtown St. Paul and downtown Minneapolis. The new line added stops at the University of Minnesota and the State Capital as well as connecting with the Hiawatha line, serving the Mall of America and Target Field. Metro Transit updated their fleet in 2016 to include 27 S700 low-floor light rail vehicles (LRV).

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle light rail vehicle is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of the S700 maintains an open low-floor configuration, making it one of the most accessible vehicles of its kind in today's market. The end-to-end low-floor allows access for all passengers including

those in the ADA community; better sightlines for security ensures improved passenger flow, comfort, safety and efficiency.

Each S700 LRV is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle. The vehicle is also equipped with four designated wheelchair spaces

### Performance and Capacity

Maximum operational speed	55 mph	88 km/h
Maximum allowable speed	59 mph	95 km/h
Service acceleration and deceleration	3.0 mphps	1.34 m/s <sup>2</sup>
Emergency braking rate	5.0 mphps	2.24 m/s <sup>2</sup>
Passenger capacity	64 seats 175 Passengers @ AW2 290 Passengers @ AW4 4 wheelchair spaces 2 bicycle racks	
Maximum operational gradient	7%	
Motor power rating	174 hp x 4	130 kW x 4
Catenary supply voltage	750 Vdc	

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allowing for priority seating to disabled passengers and hydraulic height control system to permit level boarding and exiting of the vehicle.

To accommodate Minneapolis’ bicycle population, this S700 incorporates one bicycle rack located by the flip seats at each end of the vehicle. The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

To maximize passenger comfort, each vehicle is also equipped with two roof-mounted HVAC units per LRV. In addition, to combat the extreme weather conditions in Minneapolis, the S700 features improved sidewall heaters in the passenger area and increased thermal insulation throughout the vehicle. It also features full-width removable steel snow plows at each cab end of the light rail vehicle. This design allows for full functionality of the coupler and anticlimbers without any impediment to the normal operation.

The S700 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior



electronic destination signs, as well as interior and exterior surveillance system for increased passenger safety.

Each LRV is electrically powered from an overhead catenary system (OCS) and for Minneapolis operates at speeds up to 55 mph, carrying up to 235 passengers in each vehicle with the ability to operate in multiple vehicle consists (up to four). These light rail vehicles remove automobiles off the road, in turn helping cities decrease their CO2 emissions.



Vehicle Dimensions and Weight

Length over coupler	94.3 ft	28742 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down)	12.7 ft	3870 mm
Maximum pantograph height (up to)	23 ft	7010 mm
Vehicle empty weight	101,350 lbs	45970 kg
High-floor section above TOR	2.2 ft (with 1 step plus slight ramp)	670 mm
Low-floor section above TOR	1.2 ft (threshold) 1.3 ft (center)	356 mm (threshold) 396 mm (center)
Minimum turning radius	82 ft	25 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks)	6.2 ft	1900 mm
(center truck)	5.9 ft	1800 mm





## NORFOLK, VIRGINIA

# S70 Low-Floor Light Rail Vehicle

Virginia's first light rail system opened in Norfolk in August 2011 with a fleet of nine Siemens Mobility 70% low-floor light rail vehicles (LRV) running on 7.4 miles of track. The Tide spurred \$509 million in transit-oriented development since the project began in 2007 with more development projected.

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle light rail vehicle is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of the S70 LRV has been designed to maximize passenger space, incorporating wide doorways and a predominately knee-to-back seating arrangement.

Each S70 LRV is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle. The vehicle is also equipped with four designated wheelchair spaces allowing for priority seating to disabled passengers and doorway ramps to assist in the boarding and exiting of disabled passengers.

### Performance and Capacity

Maximum operational speed	55 mph	88 km/h
Maximum allowable speed	58 mph	93 km/h
Service acceleration and deceleration	3.0 mph/s	1.34 m/s <sup>2</sup>
Emergency braking rate	5.0 mph/s	2.24 m/s <sup>2</sup>
Passenger capacity	68 seats 180 Passengers @ AW2 285 Passengers @ AW4 4 wheelchair spaces 2 bicycle racks	
Maximum operational gradient	7%	
Motor power rating	174 hp x 4	130 kW x 4
Catenary supply voltage	750 Vdc	

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To accommodate Norfolk’s bicycle population, this S70 incorporates two bicycle racks located adjacent to each doorway. The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

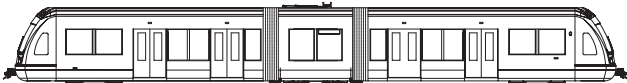
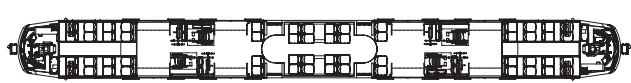
To maximize passenger comfort, each vehicle is equipped with two roof-mounted HVAC units per LRV.

The S70 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior electronic destination signs, as well as interior and exterior surveillance system for increased passenger safety.

Each LRV is electrically powered from an overhead catenary system (OCS) and for Norfolk operates at



speeds up to 55 mph, carrying up to 230 passengers in each vehicle with the ability to operate in multiple vehicle consists (up to four). These light rail vehicles remove automobiles off the road, in turn helping cities decrease their CO2 emissions.



Vehicle Dimensions and Weight

Length over coupler	93.6 ft	28530 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down)	12.7 ft	3870 mm
Maximum pantograph height (up to)	23 ft	7010 mm
Vehicle empty weight	99,500 lbs	45130 kg
High-floor section above TOR	2.2 ft (with 1 step plus slight ramp)	670 mm
Low-floor section above TOR	1.2 ft (threshold) 1.3 ft (center)	356 mm (threshold) 396 mm (center)
Minimum turning radius	82 ft	25 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks)	6.2 ft	1900 mm
(center truck)	5.9 ft	1800 mm



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## ORANGE COUNTY, CALIFORNIA

# S700 Streetcar

The Orange County Transportation Authority tapped Siemens Mobility to build eight streetcars. With most of its route following the original path of an abandoned railway, the OC Streetcar is a modern, second generation light rail system running on 4.1 miles of track.

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle streetcar is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of the S700 maintains an open low-floor configuration, making it one of the most accessible vehicles of its kind in today's market. The end-to-end low-floor allows access for all passengers including those in the ADA community; better sightlines for

security ensures improved passenger flow, comfort, safety and efficiency.

Each S700 streetcar is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle. The vehicle is also equipped with four designated wheelchair spaces allowing for priority seating to disabled passengers. The wheelchair spaces could also accommodate bicycles if necessary.

### Performance and Capacity

Maximum operational speed	44 mph	70 km/h
Service acceleration and deceleration	3.0 mphps	1.34 m/s <sup>2</sup>
Emergency braking rate	5.2 mphps	2.32 m/s <sup>2</sup>
Passenger capacity	62 seats 165 Passengers @ AW2 265 Passengers @ AW4 4 wheelchair spaces or bicycle areas plus 2 dedicated bicycle racks	
Maximum operational gradient	7%	
Motor power rating	174 hp x 4	130 kW x 4
Catenary supply voltage	750 Vdc	

# SIEMENS

To accommodate Orange County’s bicycle population, this S700 also incorporates two dedicated bicycle racks. The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

To maximize passenger comfort, each vehicle is equipped with two roof-mounted HVAC units per streetcar.

The S700 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior electronic destination signs, as well as interior and exterior surveillance system for increased passenger safety.

Each streetcar is electrically powered from an overhead catenary system (OCS) and for Orange County operates



at speeds up to 44 mph, carrying up to 220 passengers in each vehicle. These streetcars remove automobiles off the road, in turn helping cities decrease their CO2 emissions.



### Vehicle Dimensions and Weight

Length over coupler	90 ft	27451 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down)	12.7 ft	3860 mm
Maximum pantograph height	21 ft	6400 mm
Vehicle empty weight	100,775 lbs	45732 kg
High-floor section above TOR	2.2 ft (two indented steps up)	670 mm
Low-floor section above TOR	1.2 ft (threshold) 1.3 ft (center)	356 mm (threshold) 396 mm (center)
Minimum turning radius	65.6 ft	20 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks)	6.2 ft	1900 mm
(center truck)	5.9 ft	1800 mm





PHOENIX, ARIZONA

## S700 Low-Floor Light Rail Vehicle

Phoenix Valley Metro Rail tapped Siemens Mobility to build 14 S700 light rail vehicles (LRV) to help meet growing ridership needs and the next expansion of the 26-mile rail line. The contract also includes an option to purchase up to 67 additional vehicles. Whether it's a ride to the shopping district, a ride to campus, or perhaps a ride to the big game; the S700 is a fully-accessible, bicycle-friendly transportation option for all.

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle light rail vehicle is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of the S700 maintains an open low-floor configuration, making it one of the most accessible vehicles of its kind in today's market. The end-to-end low-floor allows access for all passengers including

those in the ADA community; better sightlines for security ensures improved passenger flow, comfort, safety and efficiency.

Each S700 LRV is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle.

### Performance and Capacity

Maximum operational speed	55 mph	88 km/h
Maximum allowable speed	65 mph	105 km/h
Service acceleration and deceleration	3.0 mphps	1.34 m/s <sup>2</sup>
Emergency braking rate	5.0 mphps	2.24 m/s <sup>2</sup>
Passenger capacity	62 seats 160 Passengers @ AW2 260 Passengers @ AW4 4 wheelchair spaces 6 bicycle racks	
Maximum operational gradient	7%	
Motor power rating	174 hp x 4	130 kW x 4
Catenary supply voltage	750 Vdc	

**SIEMENS**

The vehicle is also equipped with four designated wheelchair spaces allowing for priority seating to disabled passengers and doorway ramps to assist in the boarding and exiting of disabled passengers.

To accommodate Phoenix’s bicycle population, this S700 incorporates six bicycle racks located adjacent to each doorway. The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

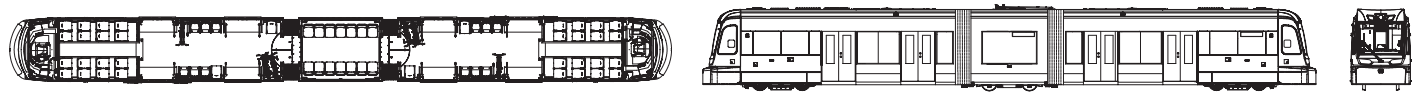
To maximize passenger comfort, each vehicle is equipped with two roof-mounted HVAC units per LRV. In addition, special attention is paid to the extreme climate conditions in the Phoenix region. Design adjustments to combat the harsh elements, such as sun, heat, and dust, have been made to increase vehicle reliability and comfort.

The S700 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior electronic destination signs, as well as interior



and exterior surveillance system for increased passenger safety.

Each LRV is electrically powered from an overhead catenary system (OCS) and for Phoenix operates at speeds up to 55 mph, carrying close to 260 passengers in each vehicle with the ability to operate in multiple vehicle consists (up to three). These light rail vehicles remove automobiles off the road, in turn helping cities decrease their CO2 emissions.



Vehicle Dimensions and Weight

Length over coupler	91.5 ft	27902 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down)	12.7 ft	3860 mm
Maximum pantograph height (up to)	23 ft	7010 mm
Projected vehicle empty weight less than	102,500 lbs	46500 kg
High-floor section above TOR	2.2 ft (two indented steps up)	670 mm
Low-floor section above TOR	1.2 ft (threshold) 1.3 (center)	356 mm (threshold) 381 mm (center)
Minimum turning radius	82 ft	25 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks)	6.2 ft	1900 mm
(center truck)	5.9 ft	1800 mm



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Photo by TriMet

PORTLAND, OREGON

# S700 Low-Floor Light Rail Vehicle

Portland opened its Westside light rail extension in 1998 with North America’s first fleet of 46 low-floor vehicles from Siemens Mobility. The success of that initial order and the increase in overall ridership over the years has prompted Portland to expand their system to nearly 60 miles of track and operate in excess of 140 light rail vehicles (LRV), which Siemens Mobility has delivered over the past 20 years. TriMet updated their fleet in 2019 to include 26 S700 low-floor light rail vehicles.

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle light rail vehicle is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of the S700 maintains an open low-floor configuration, making it one of the most accessible vehicles of its kind in today’s market. The end-to-end low-floor allows access for all passengers including those in the ADA community; better sightlines for

security ensures improved passenger flow, comfort, safety and efficiency.

Each S700 LRV is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle. The vehicle is also equipped with four designated wheelchair spaces allowing for priority seating to disabled passengers and

Performance and Capacity		
Maximum operational speed	55 mph	88 km/h
Maximum allowable speed	65 mph	105 km/h
Service acceleration and deceleration	3.0 mphps	1.34 m/s <sup>2</sup>
Emergency braking rate	5.0 mphps	2.24 m/s <sup>2</sup>
Passenger capacity	66 seats	
	170 Passengers @ AW2	
	270 Passengers @ AW4	
	4 wheelchair spaces	
	4 bicycle racks	
	Maximum operational gradient	7%
	Motor power rating	174 hp x 4      130 kW x 4
	Catenary supply voltage	750 Vdc



doorway ramps to assist in the boarding and exiting of disabled passengers.

To accommodate Portland’s extensive bicycle population, this S700 incorporates four bicycle racks located adjacent to each forward doorway. The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

To maximize passenger comfort, each vehicle is equipped with two roof-mounted HVAC units per LRV. In addition, the HVAC systems include fresh air dampers that automatically adjust based on the number of people in the vehicle, keeping compartments more comfortable for riders and increasing the HVAC system’s efficiency.

The S700 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior electronic destination signs, as well as interior and exterior surveillance system for increased passenger safety.

Maintenance improvements made include rearrangement of systems to increase access to key components on



the vehicles. The diagnostic systems have also been improved to allow maintenance employees to troubleshoot and test each system from one point rather than visiting every device along the rail vehicle.

Each LRV is electrically powered from an overhead catenary system (OCS) and for Portland operates at speeds up to 55 mph, carrying up to 220 passengers in each vehicle with the ability to operate in multiple vehicle consists called married pairs. These light rail vehicles remove automobiles off the road, in turn helping cities decrease their CO2 emissions.



Vehicle Dimensions and Weight

Length over coupler	96.4 ft	29400 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down) (ice cutter)	12.3 ft 12.8 ft	3759 mm 3908 mm
Maximum pantograph height	up to 22.3 ft	6790 mm
Vehicle empty weight	105,000 lbs	47600 kg
High-floor section above TOR	2.2 ft (with 1 step plus slight ramp)	670 mm
Low-floor section above TOR	1.2 ft (threshold) 1.3 ft (center)	366 mm (threshold) 391 mm (center)
Minimum turning radius	82 ft	25 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks) (center truck)	6.2 ft 5.9 ft	1900 mm 1800 mm





## SACRAMENTO, CALIFORNIA

# S700 Low-Floor Light Rail Vehicle

Over 150 years ago the first transit railroad was founded in California's Old Town Sacramento. In the late 1980's Sacramento purchased a base fleet of 26 Siemens Mobility's U2a high-floor light rail vehicles (LRV), followed by 10 more in the early 1990's. Thirty five years later Sacramento will soon operate its first low-floor LRV replacing the aging fleet with 45 state-of-the-art modern S700 light rail vehicles.

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle light rail vehicle is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of the S700 maintains an open low-floor configuration, making it one of the most accessible vehicles of its kind in today's market. The end-to-end low-floor allows access for all passengers including

those in the ADA community; better sightlines for security ensures improved passenger flow, comfort, safety and efficiency.

Each S700 LRV is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle. The vehicle is also equipped with four designated wheelchair spaces allowing for priority seating to disabled passengers and

### Performance and Capacity

Maximum operational speed	55 mph	88 km/h
Maximum allowable speed	65 mph	105 km/h
Service acceleration and deceleration	3.0 mphps	1.34 m/s <sup>2</sup>
Emergency braking rate	5.5 mphps	2.44 m/s <sup>2</sup>
Passenger capacity	58 seats 145 Passengers @ AW2 230 Passengers @ AW4 4 wheelchair spaces or bicycle areas	
Maximum operational gradient	7%	
Motor power rating	174 hp x 4	130 kW x 4
Catenary supply voltage	750 Vdc	

# SIEMENS

doorway ramps to assist in the boarding and exiting of disabled passengers. The wheelchair spaces could also accommodate bicycles if necessary.

The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

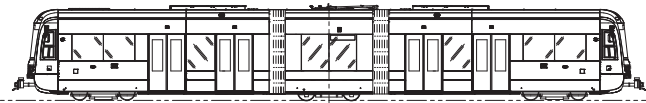
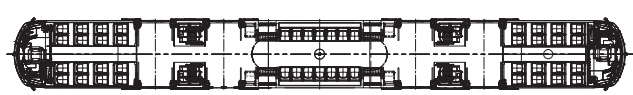
To maximize passenger comfort, each vehicle is equipped with two roof-mounted HVAC units per LRV.

The S700 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior electronic destination signs, as well as interior and exterior surveillance system for increased passenger safety.

Each LRV is electrically powered from an overhead catenary system (OCS) and for Sacramento operates at



speeds up to 55 mph, carrying close to 185 passengers in each vehicle with the ability to operate in multiple vehicle consists (up to four). These light rail vehicles remove automobiles off the road, in turn helping cities decrease their CO2 emissions.



Vehicle Dimensions and Weight

Length over coupler	81.4 ft	24800 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down)	12.3 ft	3755 mm
Maximum pantograph height	up to 23 ft	7000 mm
Vehicle empty weight	95,900 lbs	43500 kg
High-floor section above TOR	2.2 ft (with 1 step plus slight ramp)	670 mm
Low-floor section above TOR	1.2 ft (threshold) 1.3 ft (center)	356 mm (threshold) 381 mm (center)
Minimum turning radius	82 ft	25 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks)	6.2 ft	1900 mm
Wheel base (center truck)	5.9 ft	1800 mm



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SALT LAKE CITY, UTAH

## S70 Low-Floor Light Rail Vehicle

Population growth, swelling congestion, and a successful bid to host the 2002 Winter Olympics landed Salt Lake City with its very own light rail system in 1999, opening with a fleet of 23 Siemens Mobility vehicles. The success of that initial order and the increase in overall ridership over the years prompted an expansion to their system to include 44.8 miles of track. For the growing Salt Lake City system, Siemens Mobility introduced the S70 70% low-floor light rail vehicle (LRV) in 2010 and now the system operates in excess of 117 light rail vehicles.

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle light rail vehicle is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of the S70 LRV has been designed to maximize passenger space, incorporating wide doorways and a predominately knee-to-back seating arrangement.

Each S70 LRV is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle. The vehicle is also equipped with two designated wheelchair spaces

### Performance and Capacity

Maximum operational speed	65 mph	105 km/h
Maximum allowable speed	71 mph	114 km/h
Service acceleration and deceleration	3.0 mph/s	1.34 m/s <sup>2</sup>
Emergency braking rate	4.9 mph/s	2.18 m/s <sup>2</sup>
Passenger capacity	58 seats 150 Passengers @ AW2 240 Passengers @ AW4 2 wheelchair spaces or bicycle areas	
Maximum operational gradient	7%	
Motor power rating	174 hp x 4	130 kW x 4
Catenary supply voltage	600 Vdc	

**SIEMENS**

allowing for priority seating to disabled passengers and doorway ramps to assist in the boarding and exiting of disabled passengers. The wheelchair spaces could also accommodate bicycles if necessary.

The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

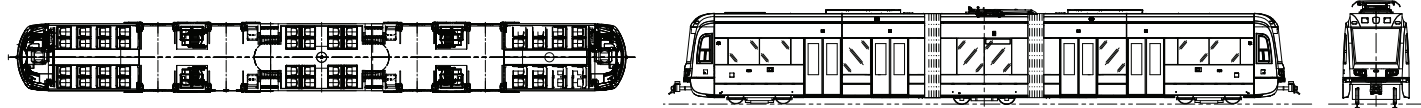
To maximize passenger comfort, each vehicle is equipped with two roof-mounted HVAC units per LRV.

The S70 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior electronic destination signs, as well as interior and exterior surveillance system for increased passenger safety.

Each LRV is electrically powered from an overhead catenary system (OCS) and for Salt Lake City operates



at speeds up to 55 mph, carrying up to 225 passengers in each vehicle with the ability to operate in multiple vehicle consists (up to four). These light rail vehicles remove automobiles off the road, in turn helping cities decrease their CO2 emissions.



### Vehicle Dimensions and Weight

Length over coupler	81.4 ft	24810 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down)	12.3 ft	3755 mm
Maximum pantograph height	up to 23 ft	7000 mm
Vehicle empty weight	96,500 lbs	43771 kg
High-floor section above TOR	2.2 ft (with 1 step plus slight ramp)	670 mm
Low-floor section above TOR	1.2 ft (threshold) 1.3 ft (center)	356 mm (threshold) 381 mm (center)
Minimum turning radius	82 ft	25 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks)	6.2 ft	1900 mm
(center truck)	5.9 ft	1800 mm





SAN DIEGO, CALIFORNIA

## S700 Low-Floor Light Rail Vehicle

The resurgence of light rail in the United States began in 1980 when the first modern era light rail took its inaugural trip in San Diego opening with a base fleet of 14 U2 Siemens vehicles. The success of that initial order and the increase in overall ridership over the years prompted San Diego to expand their system to include 65 miles of track and operate in excess of 290 Siemens Mobility light rail vehicles (LRV). The S700 platform predominantly serves the San Diego Trolley system.

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle light rail vehicle is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of the S700 maintains an open low-floor configuration, making it one of the most accessible vehicles of its kind in today's market. The end-to-end low-floor allows access for all passengers including

those in the ADA community; better sightlines for security ensures improved passenger flow, comfort, safety and efficiency.

Each S700 LRV is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle. The vehicle is also equipped with four designated wheelchair spaces allowing for priority seating to disabled passengers and

### Performance and Capacity

Maximum operational speed	55 mph	88 km/h
Maximum allowable speed	65 mph	105 km/h
Service acceleration and deceleration	3.0 mph/s	1.34 m/s <sup>2</sup>
Emergency braking rate	4.9 mph/s	2.18 m/s <sup>2</sup>
Passenger capacity	58 seats 145 Passengers @ AW2 230 Passengers @ AW4 4 wheelchair spaces or bicycle areas	
Maximum operational gradient	7%	
Motor power rating	174 hp x 4	130 kW x 4
Catenary supply voltage	600 Vdc	

**SIEMENS**

doorway ramps to assist in the boarding and exiting of disabled passengers. The wheelchair spaces could also accommodate bicycles if necessary.

The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

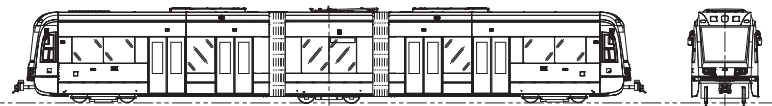
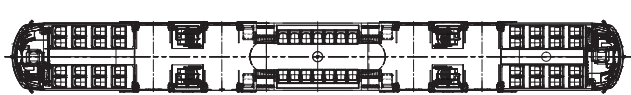
To maximize passenger comfort, each vehicle is equipped with two roof-mounted HVAC units per LRV.

The S700 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior electronic destination signs, as well as interior and exterior surveillance system for increased passenger safety.

Each LRV is electrically powered from an overhead catenary system (OCS) and for San Diego operates at



speeds up to 55 mph, carrying close to 185 passengers in each vehicle with the ability to operate in multiple vehicle consists (up to four). These light rail vehicles remove automobiles off the road, in turn helping cities decrease their CO2 emissions.



Vehicle Dimensions and Weight

Length over coupler	81.4 ft	24800 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down)	12.3 ft	3755 mm
Maximum pantograph height	up to 23 ft	7000 mm
Vehicle empty weight	96,900 lbs	43950 kg
High-floor section above TOR	2.2 ft (with 1 step plus slight ramp)	670 mm
Low-floor section above TOR	1.2 ft (threshold) 1.3 ft (center)	356 mm (threshold) 381 mm (center)
Minimum turning radius	82 ft	25 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks)	6.2 ft	1900 mm
(center truck)	5.9 ft	1800 mm



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SEATTLE, WASHINGTON

# S700 Low-Floor Light Rail Vehicle

Seattle’s Sound Transit tapped Siemens Mobility to build 122 S700 light rail vehicles (LRV) to help meet growing ridership needs and the next expansion of what will be a 116-mile rail line. Another 30 vehicles were added to the order in 2017, bringing the total number of vehicles ordered to 152.

A steel carbody construction, fully bi-directional, double articulated, low-floor vehicle, ideal for street-level operation, and built in the U.S. Each six-axle light rail vehicle is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of the S700 maintains an open low-floor configuration, making it one of the most accessible vehicles of its kind in today’s market. The end-to-end low-floor allows access for all passengers including those in the ADA community; better sightlines for

security ensures improved passenger flow, comfort, safety and efficiency.

Each S700 LRV is equipped with eight wide opening sliding plug doors all located in the low-floor area, with four to each side of the vehicle. The vehicle is also equipped with four designated wheelchair spaces allowing for priority seating to disabled passengers and

Performance and Capacity		
Maximum operational speed	55 mph	88 km/h
Maximum allowable speed	65 mph	105 km/h
Service acceleration and deceleration	3.0 mph/s	1.34 m/s <sup>2</sup>
Emergency braking rate	5.0 mph/s	2.24 m/s <sup>2</sup>
Passenger capacity	70 seats	
	175 Passengers @ AW2	
	275 Passengers @ AW4	
	4 wheelchair spaces	
Maximum operational gradient	2 bicycle racks	
	7%	
	Motor power rating	174 hp x 4
	Catenary supply voltage	1500 Vdc
		130 kW x 4

SIEMENS

doorway ramps to assist in the boarding and exiting of disabled passengers.

To accommodate Seattle’s bicycle population, this S700 incorporates two dedicated bicycle racks. The door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

To maximize passenger comfort, each vehicle is equipped with two roof-mounted HVAC units per LRV.

The S700 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms, interior and exterior electronic destination signs, as well as interior and exterior surveillance system for increased passenger safety.

Each LRV is electrically powered from an overhead catenary system (OCS) and for Seattle operates at



speeds up to 55 mph, carrying close to 220 passengers in each vehicle with the ability to operate in multiple vehicle consists (up to four). These light rail vehicles remove automobiles off the road, in turn helping cities decrease their CO2 emissions.



Vehicle Dimensions and Weight

Length over coupler	95 ft	28942 mm
Width	8.7 ft	2650 mm
Height with pantograph (locked down)	12.7 ft	3870 mm
Maximum pantograph height	22.3 ft	6800 mm
Vehicle empty weight	103,000 lbs	46720 kg
High-floor section above TOR	2.2 ft (two indented steps up)	670 mm
Low-floor section above TOR	1.2 ft (threshold) 1.3 ft (center)	366 mm (threshold) 381 mm (center)
Minimum turning radius	82 ft	25 m
Vertical curve, crest	820 ft	250 m
Vertical curve, sag	1,150 ft	350 m
Track gauge	4.7 ft	1435 mm
Wheel base (power trucks)	6.2 ft	1900 mm
(center truck)	5.9 ft	1800 mm