



*Ingenuity for life*



# S70 Ultra Short Light Rail Vehicle

## San Diego, California

According to US Industry data San Diego is cited as one the top 10 cities ranked among the best in the country for public transportation. San Diego opened its light rail system with a base fleet of 14 U2 Siemens vehicles. The success of that initial order and the increase in overall ridership over the years has prompted San Diego to expand their system to include 54 miles of track and operate in excess of 190 Siemens light rail vehicles (LRV). In 2011 Siemens introduced the latest edition of light rail vehicles for the growing San Diego system; the 70% low-floor Siemens S70 Ultra Short light rail vehicle.

A steel carbody construction; fully bi-directional; double articulated; 70% low-floor vehicle, ideal for street-level operation and built in the USA. Each six-axle S70 Ultra Short light rail vehicle (LRV) is equipped with two power trucks (one under each end) and a non-powered center truck.

The interior of this S70 Ultra Short LRV has been designed to maximize passenger space, incorporating a predominately knee-to-back seating arrangement. Each S70 Ultra Short 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 door spacing has been optimized to allow for greater passenger flow entering and exiting the vehicle, which ultimately decreases the station dwell times.

In addition to the maximized passenger space and wide doorways the vehicle is also equipped with two designated

wheelchair spaces allowing for priority seating to disabled passengers and doorway ramps to assist in the boarding and exiting of disabled passengers.

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

The S70 Ultra Short utilizes a passenger information system consisting of

### 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                | 4.8 mph/s   | 2.18 m/s <sup>2</sup> |
| Passenger capacity                    | 60 seats<br>Approx. 225 total passengers @ 6 p/m <sup>2</sup><br>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   |                       |

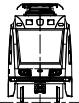


operator and automated announcements, passenger-operator intercoms and interior and exterior electronic destination signs, as well as interior surveillance system for increased passenger safety.

The S70 Ultra Short LRV is electrically powered from an overhead wire system (catenary) and for San Diego operates at speeds up to 55 mph, carrying close to 230 passengers in each vehicle with the ability to operate in multiple vehicle consists (up to four). The S70



Ultra Short removes automobiles off the road in turn helping cities decrease their CO<sub>2</sub> emissions.



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### 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               | 43771 mm               |
| Maximum pantograph height            | up to 23 ft           | 7000 mm                |
| Vehicle empty weight                 | 96,500 lbs (AW0)      | 43771 kg               |
| High-floor section above TOR         | 2.8 ft                | 855 mm                 |
| Low-floor section above TOR          | 1.2 ft (threshold)    | 356 mm (threshold)     |
| Minimum turning radius               | 82 ft                 | 25 m                   |
| Vertical curve, crest                | 820 ft                | 250 m                  |
| Vertical curve, sag                  | 1150 ft               | 350 m                  |
| Track gauge                          | 4.7 ft                | 1435 mm                |
| Wheel base                           | 6.2 ft (power trucks) | 1900 mm (power trucks) |
|                                      | 5.9 ft (center truck) | 1800 mm (center truck) |