

# SIEMENS

## SD160 High-Floor Light Rail Vehicle

Denver, Colorado

Rail Systems



The interior of this next generation SD160 LRV has been designed to maximize passenger space, incorporating a predominately knee-to-back seating arrangement. Each SD160 LRV is equipped with eight wide opening sliding plug doors, 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. An added

advantage of the Denver SD160 is the incorporation of step-wells at each doorway for street-level boarding.

In addition to the maximized passenger space and wide doorways 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.

According to US Industry data Denver is cited as one the top 10 cities ranked among the best in the country for public transportation. Denver opened its light rail system with a base fleet of eight Siemens vehicles. The success of that initial order and the increase in overall ridership over the years has prompted Denver to expand their system to include 39 miles of track and operate in excess of 170 Siemens light rail vehicles (LRV).

A steel carbody construction; fully bi-directional; single articulated; high-floor vehicle, ideal for high platform operation and built in North America. Each six-axle SD160 light rail vehicle is equipped with two power trucks (one under each end) and a non-powered center truck.

### Performance and Capacity

Maximum operational speed	55 mph	88.5 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	6.15 mphps	2.75 m/s <sup>2</sup>
Passenger capacity	64 seats	Approx. 162 total passengers @ 6 p/m <sup>2</sup>
		4 wheelchair spaces
Maximum operational gradient	6%	
Motor power rating	194 hp x 4	145 kW x 4
Catenary supply voltage	750 Vdc	

To combat the extreme winter conditions in Denver the SD160 features sidewall heaters in the passenger area, dual pane insulated windows and increased thermal insulation throughout the vehicle. To maximize passenger comfort each vehicle is also equipped with two roof-mounted HVAC units per LRV.

The SD160 utilizes a passenger information system consisting of operator and automated announcements, passenger-operator intercoms and interior and exterior electronic destination signs,

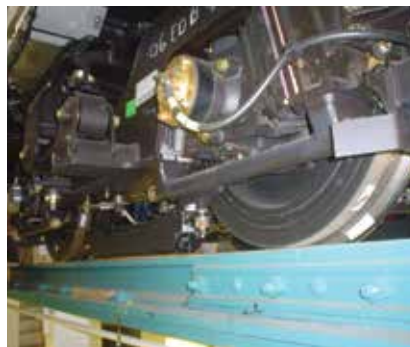
as well as interior surveillance system for increased passenger safety.

The SD160 LRV is electrically powered from an overhead wire system (catenary) and for Denver operates at speeds up to 55 mph, carrying close to 165 passengers in each vehicle with the ability to operate in multiple vehicle consists (up to four) as the maximum operational length. The SD160 removes automobiles off the road in turn helping cities decrease their CO<sub>2</sub> emissions.

In 2013 Americans took 10.7 billion trips on public transportation, which is the highest annual public transit ridership number in 57 years, according to a report released by America Public Transportation (APTA) in March 2014.

### Vehicle Dimensions and Weight

Length over couplers	81.4 ft	24820 mm
Width	8.7 ft	2654 mm
Height with pantograph (locked down)	12.4 ft	3786 mm
Maximum pantograph height	up to 23 ft	7010 mm
Vehicle empty weight	89500 lbs (AWO)	40600 kg
High-floor section above TOR	3.2 ft	985 mm
Low-floor section above TOR	n/a	n/a
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	5.9 ft	1800 mm



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