



## ELECTRIC DOUBLE-DECKER MULTIPLE UNIT

with a dual system for 15 kV AC and 25 kV AC

Since its first appearance in 2010 at the InnoTrans trade fair, over 280 KISS trains have been sold in 10 different countries. Depending on the equipment fitted, the KISS can be used for heavy rapid suburban commuter rail operation, as well as for Intercity services. The modularity of the vehicles allows the formation of multiple units with a length of 75 m to 200 m. Consists of a maximum of 400 m in length are possible with multiple unit traction. The vehicles can be operated under 15 kV 16.6 Hz, as well as under 25 kV 50 Hz, or as dual-system vehicles 15 kV / 25 kV AC. The KISS excels due to its modular train configuration, comfortable low-floor entrances, its open, bright and transparent interior as well as its options for customised seating arrangements, multifunctional zones and passenger flow. For very high passenger volumes, four instead of two passenger doors can be implemented per carriage and side. Air suspension, high-grade materials, a modern passenger information system and a pleasant, proven HVAC system guarantee comfortable travel for everyone on board.

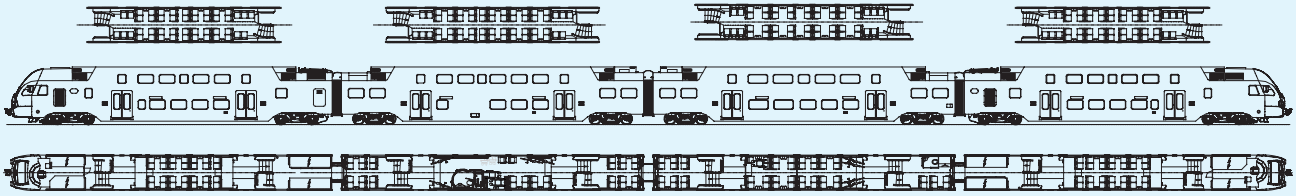
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## Technical features

### Engineering

- 4-car configuration as standard. Modular configuration offers option for 3- to 8-car versions
- Car body made of extruded aluminium profiles fulfils EN 15227, Class 1
- Motor bogies and trailer bogies with air suspension
- Redundant drive equipment consisting of four to eight powertrains with water-cooled IGBT power converters

### Comfort

- Air conditioning for passenger compartments and driver's cab, with outdoor air circulating via the perforated ceiling, and a panel heating system
- Bright, passenger-friendly interior with individual scope for design
- Generously dimensioned entrance areas for optimum passenger flow
- Two passenger compartment external doors on each side per carriage for rapid passenger boarding and alighting
- Vacuum toilet system with wheelchair access
- Plenty of space between seats
- Barrier-free wheelchair access
- Special compartment for wheelchairs and bicycles

### Personnel

- Ergonomically designed driver's cab
- Multiple unit traction for up to four trains with a maximum total length of 400 m
- Monitoring of train dispatch and travel safety through intercom systems

### Reliability/Availability/Maintainability/Safety

- Vehicle control system with train bus and diagnostics computer
- Video cameras
- Fire detection system and redundant control and communication system

## Vehicle data

	4-car KISS Rapid suburban commuter rail 160 km/h	4-car KISS IR/IC 200 km/h
<b>Gauge</b>	1435 mm	1435 mm
<b>Supply voltage</b>	15 kV 16.7 Hz/25 kV 50 Hz	
<b>Axle arrangement</b>	2'Bo'+2'2'+2'2'+Bo'2	2'Bo'+2'2'+2'2'+Bo'2
<b>Floor height</b>		
Low-floor at entrance	500 mm	500 mm
Lower deck	440 mm	440 mm
Upper deck	2515 mm	2515 mm
<b>Entrance width</b>	1400 mm	1400 mm
<b>Headroom</b>	2000 mm	2000 mm
<b>Vehicle width</b>	2800 mm	2800 mm
<b>Vehicle height</b>	4595 mm	4595 mm
<b>Bogie wheelbase</b>		
Motor bogie	2500 mm	2500 mm
Trailer bogie	2500 mm	2500 mm
<b>Driving wheel diameter, new</b>	920 mm	920 mm
<b>Carrying wheel diameter, new</b>	920 mm	920 mm
<b>Continuous output at wheel</b>	2000 kW	2000 kW
<b>Max. output at wheel</b>	3000 kW	3000 kW
<b>Starting tractive effort (up to 54 km/h)</b>	200 kN	160 kN
<b>Starting acceleration</b>	0.95 m/s <sup>2</sup>	0.76 m/s <sup>2</sup>
<b>Maximum speed</b>	160 km/h	200 km/h