



The Class 331 Electric Multiple Unit

Specification of the vehicle

The Class 331 Electric Multiple Units (EMUs) are composed of three or four vehicles, formed as follows:

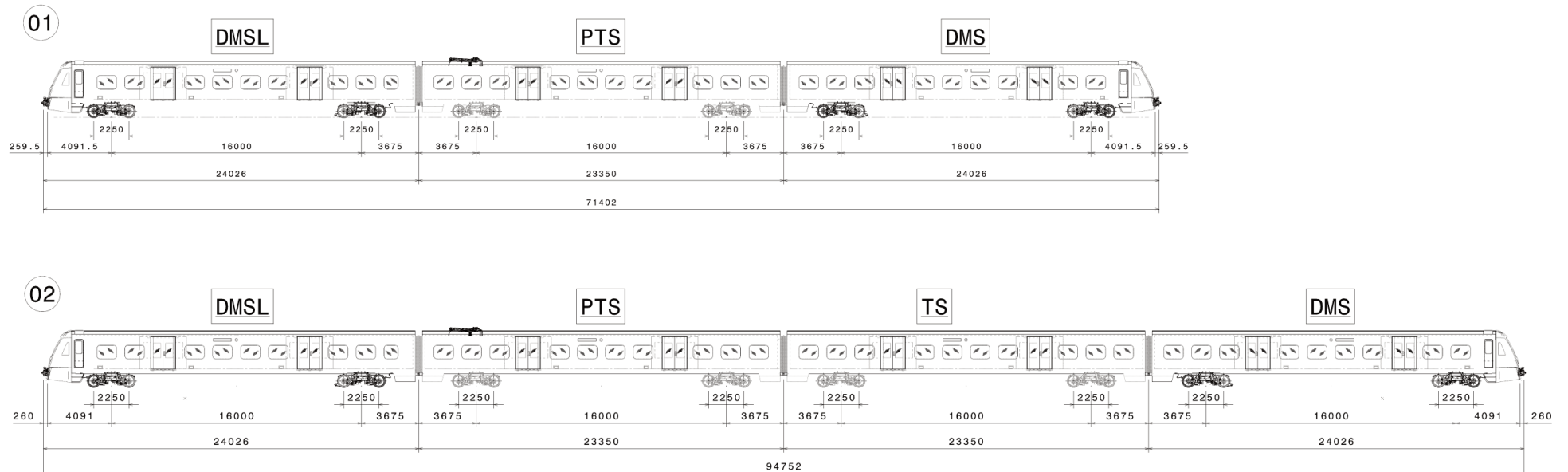
Three car configuration:

- Car DMSL: Traction Converter – Traction Motor
- Car DMS: Traction Converter – Traction Motor
- Car PTS: Main Transformer - single-phase transformer of 2570 kVA / 50 Hz

Four car configuration:

- Car DMSL: Traction Converter – Traction Motor
- Car DMS: Traction Converter – Traction Motor
- Car PTS: Main Transformer - single-phase transformer of 2570 kVA / 50 Hz
- Car TS: Trailer Standard with trailer bogies and without pantograph

The layouts of the two configurations are depicted below.



Summary of Vehicle Technical Features



A summary of the key technical characteristics of the Class 331 EMU is provided below.

Category/System	Class 331 EMU Details	
Traction Power Source	25 kV ac Overhead Line	
Transmission Type	Electric	
RSL Registration	Class 331	
Maximum Speed	100 mph	
Type of Brake	Wheel Mounted Disc	
Braking Capability	GM/RT2045 Iss.4 - Compatibility Requirements for Braking Systems of Rail Vehicles (Supersedes GM/RT2040, GM/RT2041 and GM/RT2044)	
Braking System	Knorr Bremse EP2002 electro-pneumatic brake control system (with regenerative braking via the traction system)	
Length of Vehicle		
	DMSL	24.026 m
	PTS	23.350 m
	TS	23.350 m
	DMS	24.026 m
Width	2.712 m	
Height	3.870 m	
Axle Load (Tare) *		
	DMSL	11.30 t
	PTS	8.88 t
	TS	7.97 t
	DMS	11.21 t
Coupling	Dellner Auto Couplers between units. Semi-permanent bar couplers between vehicles within unit.	
Route Availability	TBC	
Doors	Electrically-powered double leaf sliding plug doors	
Toilets	1 PRM compliant toilet	

* Axle Loads are derived from current design stage data i.e. calculated weights. This data will need to be revised using actual 'weighed weights' once the vehicles have been built.

Supplier Matrix



Component	Supplier	Remarks
Body shell	CAF	Aluminium construction
Bogie Supply	CAF	
Wheelsets and gearbox	CAF	
Wheel Bearings	FAG	Inboard design with temperature monitoring
Traction Motors	TSA	Asynchronous motors
Transformer	ABB	
Traction power control	CAF Power and Automation	
Pantograph	Brecknell Willis	HSP MKII
Pneumatic system including brake control and sanding	Knorr Bremse	
HVAC	Merak	Saloon and cab supply independent
Exterior doors	IFE	I4 installation
Saloon seating	Fainsa	Comrail design.
PRM Toilet	ALTE	Located in DMSL
AWS/TPWS MK4	Unipart	
ERTMS	CAF Signalling	
OTDR	Hasler	
ASDO	EKE	
CCTV	R2P	
WIFI	Icomera	
Seat reservation system	Dilax	
Passenger counting system	Dilax	