



Application Report

METRO TRAINS – Moving you around Melbourne

Partner Metro Trains Melbourne
Area Transport and traffic technology

Transport and traffic technology

Mobility

Safety and security

Sustainability

Partner



Metro Trains Melbourne operates a fleet of 420 three-car train sets on 869 kilometres (540 mi) of track. There are sixteen regular service train lines and one special events train line. The train fleet travels over 30 million kilometres and provides more than 228 million customer boardings each year.

Metro Trains Melbourne is also responsible for 218 railway stations and employs a workforce of 3,500 rail professionals including train drivers, mechanical and electrical engineers, network operations specialists and customer service representatives.

ComatReleco products in use

- RIC20 - Railway Contactor

Metro Trains Melbourne, known colloquially as simply **Metro**, is the franchised operator of the suburban railway network in Melbourne, Australia. Metro Trains Melbourne is a joint venture between MTR Corporation (60%), John Holland Group (20%) and UGL Rail (20%).

The **Comeng train** is a type of electric train that operates on the suburban railway network of Melbourne, Australia. In total 570 carriages (380 motor cars and 190 trailer cars, a total of 95 six carriage sets) were built by Comeng, Dandenong from 1981 to 1988.



The Comeng Train

The Comeng trains are single deck and are semi-permanently coupled as M-T-M (motor-trailer-motor) sets, but these sets spend much of their time coupled in pairs as six-carriage sets. Comeng trains have power operated doors that must be pulled open by hand but are closed by the driver. The trains were the first suburban trains in Melbourne to have air-conditioning in the passenger saloon. They operate in larger numbers on the Northern, Dandenong, Cross City and Sandringham group lines, although some are continuing to run on the Burnley and Clifton Hill group lines which are serviced by a higher proportion of newer X'Trapolis trains.

Different Refurbishments until now

Into the past the Comeng trains were fitted by interior

arrangement, Upholstery – Seats, Seating arrangement, Cab Fittings - Windscreen Wiper and light covering. By end of 2019, 75% of the fleet would have the new upgrades.

Safety of passengers thanks to corresponding door locks

It seems clear, that safety is not assured only by fitting new door handle. Safety request also an upgrade concerning the door control and Monitoring System. To cap this request MTM found true Arlin Pty Ltd (supplier for components & Hardware) a Swiss Premium product, developed and manufactured from ComatReleco Ltd in Switzerland. ComatReleco itself is a leading global supplier of high-quality components, systems and services in Industrial Automation, Electrical Installations and Railway and Transport Applications. Their core competencies are Industrial, Time and Monitoring Relays. The product portfolio enjoys an outstanding world-wide reputation.

The contactors Arlin finally supplied to Metro will be part of the train coupling / uncoupling circuit which is also part of the door control and monitoring system. In a nutshell, the uncoupling circuit, tells the train whether two carriage are electrically connected or not, and therefore the circuit ensure that the signal coming from the rear car doors will be transmitted across every car leading to the Drivers Cab. If a door is open in a rear carriage, the train will be able to detect it and will not be able to power. This is achieved by a series of safety contactor located in every car. The reason why these contactors are so important is because if one them was to fail, the train lined signal would be interrupted, leading the train into thinking that one of the carriage is electrically disconnected and therefore traction would be unavailable and train stopped.

There different reason why Metro finally chose this premi-

um product from ComatReleco to fit the new safety generation in the Comeng Trains. The worldwide smallest body shape for railway contactors allows the installation in the existing electrical cabinets into the train. Corresponding to the EN50155 as an International standard, the ComatReleco contactor is covering the need for electronic, used on rolling stock. This standard cover aspects concerning temperature, humidity, shock, vibration, and other parameters.

The Railway contactor from ComatReleco offers some more technical strengths. The coil voltage is available for 24, 36, 72 and 110VDC. This large portfolio allows a versatile use of this type of contactor. Be it in refurbishing or in new configuration. The rated operational current for DC-5 Application by 110VDC Voltage is 4A, assuring minimal switch cycles for more than 300'000 times. The use from this contactor is multifunctional and able to switch currents up to 20A. The integrated spacer allows a fast and technically correct mounting on site.

Of course safety will be done technically, but safety also need trust between manufacturer and the business partner. The relation between Arlin and MTM is very strong due to a long-term partnership. Thanks to this close collaboration, innovative and cost-effective solutions can be developed for needs of all kinds. Safety first does not start in the field but already at the desk.

