



Driverless Train Safety SMART DPPS™ in use on the Dubai Metro

The world's longest driverless train network has turned to Zonegreen's SMART DPPS™ to ensure the safety of depot staff.



Fig 1: Dubai Metro – Driverless Trains

Driverless train systems are constantly growing in popularity and are bringing about huge changes in urban mass transportation. While there has been some degree of automation on rail networks for decades, the current trend towards fully automated and driverless networks shows no signs of hitting the buffers.

Many of the new metro networks currently under construction around the world are embracing driverless trains and all the advantages they bring. These include improved capacity through tighter scheduling, more predictable running times and automated detection of faults and failures.

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Alongside the numerous advantages, however, comes a whole new set of challenges. Fully automated rail systems require hugely complex infrastructure, from automatic detection systems to vast CCTV networks. All of this must be closely monitored by staff in highly sophisticated central control rooms.



Fig 2: Safety in Driverless Trains is Paramount

At the forefront of this ever-growing trend towards driverless trains, the Dubai Metro is officially the world's longest fully automated metro network. With 75 kilometres of track, 87 trains and 47 stations, keeping the network running safely and punctually means making use of the very latest technological innovations.

Tackling Safety

In light of a perception among some passengers that driverless trains are less safe than conventional trains, safety is the top priority on fully automated networks. The perception is that in emergencies, or when automation fails, conventionally driven trains are safer than the automated alternative. For this reason, new safety solutions and improvements are constantly being sought. Many of these improvements are designed to ensure maximum safety of passengers, such as sealed doors on platform edges that open only when a train is in the station.



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These passenger safety systems are only part of the picture however. The rigorous cleaning and maintenance schedule of a large network like the Dubai Metro, with its 87 trains constantly being moved in and out of three fully staffed depots, means that safety of depot personnel presents a set of challenges of its own.



Fig 3: Dubai Metro Maintenance Depot

To manage the safety of staff in its three depots, Dubai Metro turned to Zonegreen's SMART DPPS™ (Depot Personnel Protection System), commonly known as depot protection system. This advanced depot control system ensures that cleaning, repair and maintenance crews can work on the trains in safety.

Depot Protection System

Zonegreen's DPPS™ Depot Personnel Protection System has been used in many train depots around the world, including the prestigious Eurostar Temple Mills Engineering Depot in East London. Being chosen for the Dubai Metro, probably the most modern and sophisticated railway network in the world, serves to underline the reputation for effectiveness and reliability of Zonegreen's Depot Personnel Protection System.



Fig 4: SMART DPPS™ Personnel Safety Road End Panels

A key factor in the growing global presence of the Depot Personnel Protection System is the decentralised control of safety mechanisms, meaning that depot staff are able to isolate separate roads for working. Data keys give staff access to a series of individual control panels, and can be set to offer varying levels of access. This means that cleaning staff, for example, can be given a different level of access to technicians.

Intelligently interfacing with other vital equipment in the depot, such as overhead wires and signalling systems, Depot Personnel Protection System's decentralised operation means that a failure in one unit does not shutdown the entire depot, interfering with tight schedules. With many rail networks running at or near capacity most of the time, this is an issue of critical importance.

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Fig 5: Zonegreen's Intelligent powered derailleurs and signalling systems control depot train movements in a safe and efficient manner

Fully compliant with the rail industry's rigorous safety standards, and with its reliability and capability being proven daily, Zonegreen's Depot Personnel Protection System has become the safety system of choice for many cutting-edge railway depots around the world.

While it does not guarantee the safety of driverless trains or their passengers in operation, Zonegreen's Depot Personnel Protection System ensures that staff at all three of Dubai Metro's busy depots are among the safest in the world.



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