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Article
PCS100 RPC - PCS100 Reactive Power Conditioner powering one of New Zealand's most popular tourist attractions

Passengers will be treated to a smooth, uninterrupted journey on Wellington's iconic cable car, courtesy of ABB's 100 kVar Reactive Power Conditioner (RPC) which is helping improve the power quality for the cable car's electrical drive system. This project on New Zealand's capital city's funicular railway includes many exclusive milestones for ABB. As well as being the first PCS100 installed in New Zealand, it is the first in the public transport industry globally. It is also the smallest footprint PCS100 product ever built.

The cable cars are driven by a DC drive which produced notching and harmonic disturbances onto the electrical distribution network and draws a poor power factor. With ABB's PCS100 RPC employed, the power factor is corrected back to unity as required as well as mitigating the low order harmonics.

Gavin MacIntyre, Wellington Cable Car's Maintenance Manager, highlighted how the RPC will improve the cable car's performance, "The RPC will correct power factor grid compliance and dampen the harmonics that can disrupt the cable cars positioning system and relays".

An economical solution

Based on a unique modular design providing high reliability, the PCS100 RPC will provide such benefits as;

– Preventing costly penalties due to poor power factor or harmonics.
– Ensuring correct operation of 3-phase rectifier loads, extending their lifetime, by correcting for voltage unbalance.
– Lowering maintenance costs by not exposing equipment to poor quality power.
– Eliminating the risk associated with traditional power factor capacitor correction systems such as, overheating caused by harmonic resonance problems.

Gavin comments that grid compliance was important and a specific business driver for this project, "Several times a journey, the cable car regenerates, returning power to the grid, so grid compliance was very important to us". Gavin further comment that using a capacitor based solution would not be financially viable and why ABB's RPC was an economical option, "We looked at a capacitor based solution but with the specific usage we have, we would be having to replace capacitors so often, that it would be become financially nonviable".

A tourist attraction

In 2012 the cable car celebrated 110 years of service to the City of Wellington. A favorite of locals and visitors alike, the cable car allows easy access from its terminal on Lambton Quay in the CBD, to the top entrance of the Botanic Garden and the Kelburn lookout. Three intermediate stops allow for easy access to local residential and business addresses, and at Salamanca access to the Kelburn campus of Victoria University.

ABB's PCS100 RPC is the ideal solution for improving power quality in commercial and industrial electrical installations, across a wide range of industries like the public transport industry. With power ratings from 100 kVAr to 2 MVAr, the RPC responds instantly to power quality events while providing continuous reactive power correction.

Watch the Wellington Cable Car video here

For further information please visit:
www.abb.com/converters-inverters
(Converters for power protection)