

Tourists Have Smooth & Safe Ride Up Kong Tong Thanks to Control Techniques' Drives



The latest cable car project by the Sichuan Mining Machinery Company, China's leading supplier of passenger and materials ropeway systems, again features drives from Control Techniques, chosen because of their smooth operating characteristics and inherent safety features. The project is a cable car lift up Kong Tong Mountain, a well-known and popular tourist and skiing destination in GanSu Province.

This follows around 60 sets of drives for cable cars produced by Sichuan Mining Machinery, who introduced the passenger ropeway technology from Austria and Switzerland into China and who standardised on Control Techniques AC and DC drives 10 years ago. Other projects featuring Control Techniques drives include Jiyuan Mountain in Chongqing and a lift up the Great Wall in Beijing.

At Kong Dong Mountain, with one intermediate 120 metre high tower, the cable car ride totals 1,800 metres at 5 metres/second to rise 750 metres above the surrounding countryside. The system is a single-cable circulating ropeway driven by a 280 kW DC motor at 400 V.

The control of the cable car is by a 300 kW, four quadrant Mentor II DC drive, fitted with a programmable plug-in MD29 module, operating in conjunction with a Modicon PLC. Mentor II was chosen by the client because of its excellent track record of reliability coupled with flexibility and safety of control because of its onboard programmable module, the MD29.

The MD29 incorporates safety programs including motor over-speed detection, compulsory speed threshold limits and rope breakage detection – and also a motor shaft protection algorithm (comparing motor shaft speed against gearbox shaft speed) to meet the client's safety specifications. The unit also includes dynamic brake control and power calculation, which is fed back to the master PLC.

The MD29 provides an S-ramp ride profile with extremely smooth start and stop. The over-speed protection incorporates dynamic over-speed protection during the journey and a separate protection algorithm as the car pulls into either stations. Position control within the drive is initiated as the car enters the station, with internal switching speed reference giving a 0.3 metres per second final approach.

In addition, as a back-up, a 55 kW soft-starter is also installed on the panel, which was built by Control Techniques China dealer, Chengdu Strong Electrical Co, who will provide service and support to the customer.

Mentor II is Control Techniques' advanced digital DC drive that spans 7.5 - 750 kW in single or four-quadrant format. With connection to most industry networks, Mentor can be incorporated into multi-dropped control systems, communicating directly with programmable logic controllers and host computers.

The powerful plug-in application co-processor (MD29) gives the Mentor local intelligence by executing real-time custom software. Standard functions available include: digital speed and position loop, centre-wind for coiling and uncoiling applications, shaft orientation, 'S'-ramp for smoother acceleration and deceleration and kW signal for motor power consumption.

KEY BENEFITS

- RELIABILITY
- FLEXIBILITY
- SMOOTH OPERATION
- ONBOARD PROGRAMMABLE MODULE



For further information please visit www.controltechniques.com



CONSIDER IT SOLVED™