

Industry: Special Vehicles / Air Conditioning
Products: Alpha XL Compact PLC

Keeping cool – even at the hottest football matches

Fans all over the world are enjoying the football World Cup and other matches on their private TVs and public large-format video screens. The broadcasting networks are using the latest and best technology. In the networks' outside broadcast units reliable cooling systems are essential to make sure that both the equipment and the staff can keep working with maximum efficiency when things start to get hot. The powerful and very compact air conditioning systems installed in the broadcasting trucks are regulated by micro-controllers.

This is the speciality of Clim Cool Project in the Swabian town of Renningen, a company that has been developing air conditioning systems for special vehicles for over ten years - among other things. One of their more recent jobs was for a television outside broadcast unit installed in a big semi-articulated trailer truck, packed with the very latest technology. It is designed to support up to 28 TV cameras and has space for a staff of around 18, including the audio technicians, video operators and broadcasting directors.

To ensure that the staff feel comfortable and the equipment works reliably, Clim Cool Project fitted the trailer with a 70kW air conditioning system for cooling, heating, ventilation and dehumidification. It must be able to cope with widely-varying outside ambient conditions - ranging from -25°C at winter sports events to over 40°C during broadcasts from southern regions. The staff can adjust the temperature of their workplace manually between 18 and 28°C with rotary potentiometers, but the temperature of the air fed into the electronic equipment is automatically maintained at a level between 10 and 18°C. The entire air conditioning system is controlled and monitored by seven Mitsubishi Alpha XL micro controllers using 2-point control.

The engineers at Clim Cool Project choose the Alpha XL because each unit supports up to 28 I/O points, eight of which can be used for analog signals. These eight analog inputs are needed to connect one Pt100 temperature sensor and a setpoint generator for each cooling station and two pressure transmitters for each compressor. There were a number of other criteria that influenced the controller choice: To begin with, the Alpha XL is specified for operation in an ambient temperature range from -25 to +55°C.



The engineers also wanted to distribute the air conditioning control tasks across several smaller controllers to increase overall reliability.

Another big advantage of this system is that all the open and closed loop control processes are run in the controllers, which helps to keep the wiring and the number of terminals required to a minimum. In addition to costing money terminals also take up space, which is in very short supply.

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