Case Study

> Cable & Wireless, Falkland Islands

Cable & Wireless is a global telecommunications company focused on the provision of high performance Internet Protocol (IP) and data services to business customers across eighty countries. Airedale has worked with Cable & Wireless, Falkland Islands, to supply a precision control, free-cooling solution for the Falkland Islands' new IP-based telephone exchange in Stanley. By taking advantage of the low ambient temperatures, very little mechanical cooling is used and substantial energy savings can be recouped.

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Cable & Wireless, Falkland Islands: Requirements

Cable & Wireless, Falkland Islands, is the exclusive provider of telecommunications services in the Falkland Islands, where Airedale's close control systems are already providing precise cooling in a Satellite Earth Station. All national and international traffic passes through the Cable & Wireless network. A point-to-multi-point microwave telephone network serves a population of 2,000 whilst a military garrison has its own private network that interconnects with Cable & Wireless. Local internet access is also available.

Housed in a new building insulated against the hostile local environment, the new IP-based switch produces a high heat load which demands substantial 24/7 cooling.

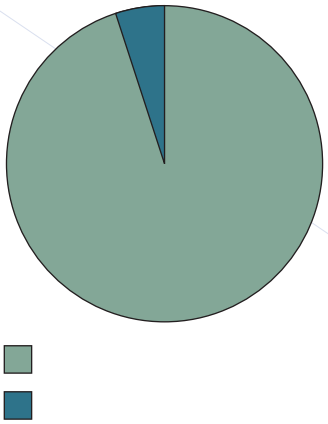
Design Criteria

The new switch requires a constant 20°C for optimum efficiency. Continuous system operation and low ambient temperatures give Cable & Wireless the opportunity to make maximum use of Airedale's free-cooling technology in order to recoup significant energy savings and quicker investment payback.

Airedale's Ecotel Indoor unit has been specifically designed and purpose-built for indoor telecom applications to provide precision control with a free-cooling capability.

Free-cooling: Recoups Energy Savings

Situated in the South Atlantic, the Falkland Islands enjoy a narrow temperature range between -5°C in July and 22°C in January. In Stanley, temperatures range from 6°C to 13°C in January and from -5°C to below 0°C in July.



Based on these typical temperatures, the internal operating temperature of the telephone exchange is higher than the actual outdoor dry bulb temperature virtually all year round. During this time the free-cooling cycle of the Ecotel Indoor unit can totally satisfy the internal heat loads produced by the telecoms equipment. The Ecotel Indoor gives priority to free-cooling whenever the external ambient is 2°C or more below the room temperature. In any hotter spells of weather, the number of air changes can be increased in order to continue to take advantage of free-cooling.

Says Brian Clark, independent technical consultant on the project and specifier of the Ecotel Indoor units: "The climate in the Falklands is ideal for free-cooling equipment and we expect to operate these units on fresh air for over 95% of the year."

Even in less extreme climates, free-cooling can make a significant contribution to energy savings. In the UK, the Ecotel Indoor has been developed to utilise a 'free-cooling' cycle which can totally satisfy the internal heat loads produced by telecoms equipment for 67%* of the year, based on the internal operating temperatures of modern day telecom cabins being higher than the actual outdoor dry bulb temperature for more than 95% of the year.

*(Based on ambient hours for London produced by the Meteorological Office, Bracknell, UK and cabin setpoint of 27°C).

Unit Specification

> Two Ecotel Indoor 17 kW downflow units set as 'run and standby'.

The Ecotel Indoor is a self-contained, fully-packaged unit, with small footprint and intelligent controls. Each unit in the new telephone exchange is configured to provide three stages of DX cooling enabling capacity to precisely match the application. The Ecotel Indoor also features tandem hermetic scroll compressor technology for reliability, reduced sound levels and further enhanced cooling performance.

Says Brian Summers, Cable & Wireless management coordinator for the project: "Existing Airedale units situated at the Islands' Satellite Earth Station have operated faultlessly for the last ten years and it's good to have peace of mind in the knowledge that the new switch and ancillaries are being looked after by Airedale's Ecotel Indoor units."

Fine-Tuning with AireTronix Controls

Equipped with the very latest microprocessor technology, the two Ecotel Indoor units can be fine-tuned for even greater energy efficiency. Direct-drive, backward-curved impeller fans, fitted as standard in the Ecotel Indoor, are fully adjustable by means of the microprocessor display, allowing for simple alteration of air flow and static pressure, reducing commissioning time to a minimum.

The two Ecotel Indoor units have been networked together and are BMS compatible. During commissioning, an Airedale engineer set up a GSM Modem to report alarm messages by text to a mobile phone.

Fully-packaged System Ideal for Remote Applications

Designed and delivered as a fully-charged packaged system, the Ecotel Indoor unit eliminates the need for on-site pipe work installation and is ideal in situations where it is architecturally undesirable to feature external compressors or a complete unit. The new building has been designed with a false floor to accommodate the cables and downflow configuration. All major components, such as the expansion valve and compressor are accessible from the side of the unit and the control panel from the front. Isolated from the air flow, these areas can be worked on with the unit in operation, helping to simplify commissioning and maintenance.

Quiet Operation

The cabinet provides an airtight enclosure within which the packaged unit is positioned and this, together with the internal acoustic insulation and scroll compressor technology, greatly reduces noise breakout.

For details contact Airedale on +44 (0)113 239 1000 or enquiries@airedale.com

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