

Overview

The first Relio system was designed as a remote data acquisition component of an OEM Enterprise Management System. Vital systems and infrastructures require constant monitoring and vigilant management to stay online and available. The Relio automatically collects and sends data from critical infrastructure devices such as UPS, generator, and power distribution units and communicates that data, as well as status and alarms, back to the centrally located enterprise server that analyzes the information. The Relio can operate independently and generate alarms even if the connection to the central server is unavailable, increasing the overall availability of the management system.

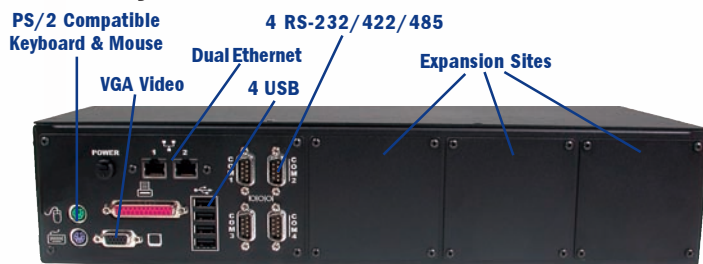
Application Requirements

The customer needed a 2U 19" rackmount solution that was highly reliable, PC compatible, provided dual 10/100BaseT Ethernet, and offered I/O expansion. The Windows XP Embedded OS and solid-state operation were specified.

The Sealevel Solution

Sealevel designed a rugged 2U computer system that uses a 933MHz Low Voltage Pentium III processor capable of fanless, high-temperature operation. CompactFlash disk is used for storing the Windows XPe OS image and the customer's application, allowing completely solid-state operation for the highest MTBF possible. Standard I/O includes dual 10/100BaseT Ethernet, four RS-232/422/485 ports, four USB ports, and analog video capabilities. The system supports up to three PC/104 expansion modules and is designed to run from a 5V external power source.

Relio Base System

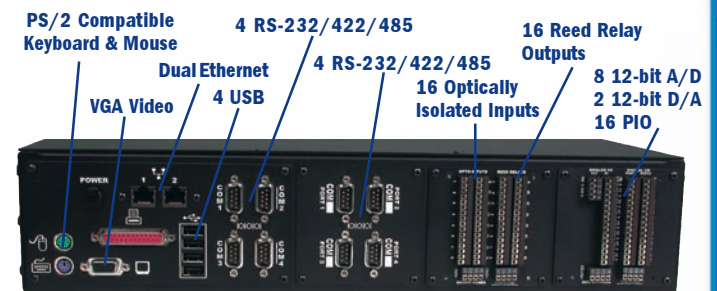


Key Design Challenge:

Flexible PC/104 I/O Termination

Since each facility has unique requirements, the customer needed flexible I/O configurability. PC/104 was chosen for expansion because of vibration tolerance and the wide selection of products available off-the-shelf. PC/104 cards stack onto the host processor board and the method for connecting real-world signals to the I/O boards is not defined. To solve this dilemma, Sealevel designed **I/O Personality Modules** that mount in the Relio's chassis and connect external signals to our family of PC/104 boards.

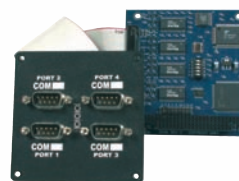
Relio with Serial, Digital, & Analog Expansion



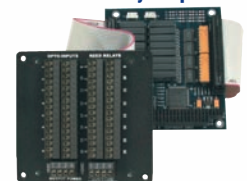
I/O Personality Modules consist of a printed circuit board and metal mounting plate. A header connector on one side of the PCB connects via ribbon cable to the PC/104 card while the other side of the PCB is used to mount the appropriate I/O connector (e.g. screw terminals, DB-9s, etc.). I/O Personality Modules are each the same size and mount into any of the three Relio's expansion openings allowing any combination of PC/104 modules to be installed to customize each system to individual application requirements.

Relio I/O Personality Modules

4 Port RS-232/422/485



16 Opto-Isolated Inputs/
16 Reed Relay Outputs



8 Channel A/D, 2 Channel D/A



Wireless Ethernet

