



Local HMI Using SEL Tough Computers

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INTRODUCTION

A human-machine interface (HMI) allows an operator to monitor and control the machines used in an automated process. Computer-based HMIs are found extensively in today's process control systems, using graphical onscreen controls that are virtual representations of the physical switches, pushbuttons, and gauges in control panels of the past. These HMIs range from simple numerical data displays, to basic two-dimensional drawings, to complex three-dimensional renderings of the systems they control. They can trend and archive data, automate control, and advise operators when actions need to be taken.

PROBLEM

Local HMIs are used in remote locations in close proximity to the systems they control. Because of this, the HMIs must operate in the same environments as the machines and systems they control. The conditions in these locations are often harsh, with extreme vibration, shock, heat, moisture, dust, and debris as part of the normal operating conditions that the HMI computers must endure. In many cases, these HMIs are critical to the systems they control. If the HMI is not operational, the whole system becomes nonoperational.

SEL SOLUTION

SEL tough computers are designed to be applied in harsh environments without any additional equipment or special enclosures to protect them. Because the computers are factory loaded with Microsoft® Windows® operating systems, customers and integrators can install any Windows-based software to meet their application needs. Combine SEL computers with a robust HMI software package, and you have an ideal platform for local HMIs.

SEL Substation-Grade Hardware

SEL tough computers are designed and tested to endure the same harsh conditions as SEL protective relays. Using a low-power, high-efficiency processor and unique thermal design, SEL computers can operate in a wide temperature range without fans. They also have no moving parts and utilize solid-state storage to make them immune to shock and vibration. A rack-mount chassis allows them to be installed in the same standard 19-inch cabinets as most other protective and industrial equipment. An integrated watchdog monitors computer

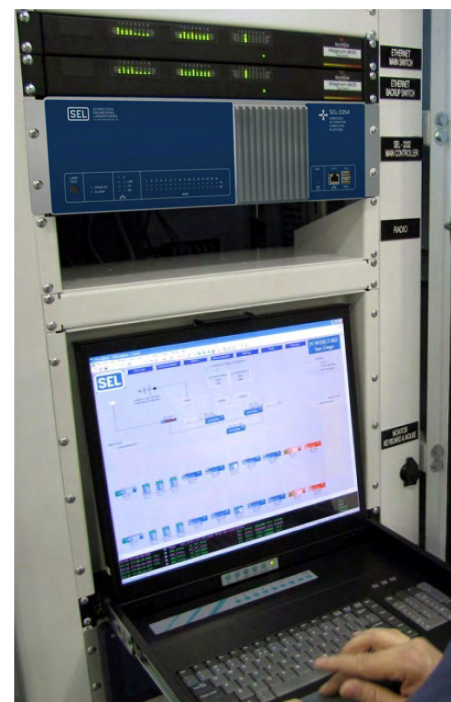


Figure 1 Local HMI Based on SEL-3354 Embedded Automation Computing Platform

health and alerts the operator of conditions that could lead to system failure. Integrated power supply options enable SEL computers to directly connect to a wide range of ac and dc sources, removing the need for external power inverters. With up to 16 serial ports and dual Ethernet adapters, an SEL computer can also serve double duty as both an HMI and a data concentrator, collecting data from nearby serial or Ethernet devices to be served to enterprise databases and systems. Because SEL computers are zero maintenance and extremely reliable, the total cost of ownership is significantly lower than local HMIs based on lower cost PCs and servers.

Survalent WorldView HMI Software

Survalent Technology is one of the leading names among utility SCADA and HMI systems. WorldView is one of Survalent's flagship products with a large following. Its efficient software design makes WorldView a very robust but lightweight application that has been used with great success on SEL computing platform products.

The high-level features of this software include the following:

- Operator summary displays
- World map displays
- Trend graphs
- Alarm summary displays
- Tabular data displays
- Comparison graphs
- DWG/DXF drawing import
- Library of symbols, text, etc.
- JPG, BMP, and GIF support

Survalent Technology can be reached at +1.905.826.5000 or <http://www.survalent.com>.

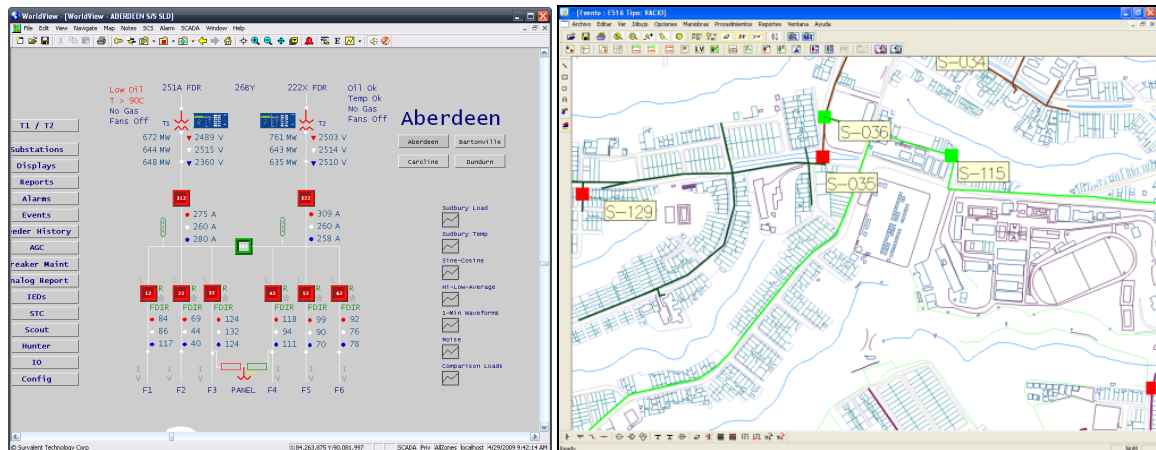


Figure 2 Survalent WorldView One-Line Screen and Map Display