# Processing With Industrial PCs

In today's world of steel making, profit margins are as thin as sheet metal. That makes the margin of error at the Timken Faircrest plant in Canton, OH even thinner for the utilization of time, equipment and raw material. The workforce must be coordinated across a site covering dozens of acres. Up in a crane or out in the yard, 18 noax thin client industrial computers efficiently and economically enable crews to coordinate the operations at this vast facility.

The view from the cab of the moveable crane suspended 30 feet from the floor is spectacular. From that vantage point, Timken employee Jeff Thompson directs the pour as a stream of red-hot molten steel flows into ingot molds below in a display of smoke and flash. Yet high up in the crane he is able to pin-point the pour thanks to easy-to-read information from a noax industrial computer with a 15" touch screen.

This is just part of the process at Timken's steel mill. Timken built its reputation on manufacturing tapered roller bearings, but quality alloy steel has become a major portion of its business. Over 1.5 million ingot tons of steel is produced annually. About 90 percent is shipped to customers located throughout the world. All of it is produced to customer specification using tight control of both chemistry and processes.

**Computers As Flexible As The Operation They Oversee** Steel produced here is made from scrap metal, which is stored in piles throughout its 26-acre scrap yard north of the plant. The scrap piles are sorted by material type and loaded by Sennebogen cranes into 61-ton capacity Komatsu dump trucks. At this facility Timken uses four cranes and four trucks, each with a vehicle terminal equipped with the rugged N7A all-in-one motherboard.

These vehicle terminals are wirelessly connected (both cellular and 802.11) through a Cisco military-style 3200 router to a server in the main computer room. According to Jeff Yackley, principal process control engineer, "All of the terminals are using RDP (Remote Desktop Protocol), but there is a lot of versatility with noax terminals to use xterm, Linux, Citrix ICA, NX and many other protocols as well."

"The noax touch panel computers with their high-contrast 1024 × 768 resolution touch screens give my crews the easy-to-read information they need," Yackley says. "Everything else I looked at fell short at a screen resolution of only 800 × 600, plus the noax terminals offer automatic brightness control through their special micro controller for a wide variety of lighting situations."

This controller not only controls the backlight but also verifies internal temperature, internal voltages, input supply voltage, and the internal fan RPM. It takes on various monitoring and control tasks, which provide greatly enhanced operating safety. A

user-friendly application allows operating states to be individually configured and monitored. A warning symbol is displayed if a critical operational state occurs which can be followed by an automatic shutdown of the computer.

**Built To Take The Abuse** The computers are shock-mounted in the truck cabs to withstand the rough ride in the yard. A specially-designed heatsink dissipates excess heat within the mill away from the computer. The IP65 (NEMA 4) computer design prevents dirt, moisture, and water from entering the unit and damaging the electronic components.

Despite their compact, enclosed design, these waterproof terminals provide high power, high scalability, and tremendous upgradeability. The proprietary noax motherboards are the heart of every noax computer. Standard equipment includes 100 percent Intel chipsets, various on-board interfaces, and PCI slots, making noax industrial PCs very upgradeable as future needs change.

Moreover, Yackley appreciates that he is using noax thin client terminals. “Computer operation takes place on a 128 MB compact flash card. Not only does this mean I can run my application with just a small amount of memory, but with compact flash media, I don’t have to worry about potential data loss due to shocks and vibrations.”

The functions of a pulpit-located console have been replaced by a rack-mounted server, which communicates with the computers in the trucks, cranes, and at other points along the process. Along with the expansive scrap yard, the mill operation is a cavernous 21 acres under roof. “What’s cool,” Yackley says, “is that the noax PCs let the truck drivers see what the crane operators and the main computer see at the same time.”

**Goodbye To The Steno Pad** During the bottom pouring process, a noax industrial C15 terminal tracks how much weight is going into the ingot molds and enables the operator to avoid pouring the ladle’s slag by-product into the molds. Jeff Thompson, the teeming crane operator, says calculations were previously done on a steno pad. The touch screen allows Thompson to tap in information, even with gloves, making the process easier.

“The beauty of this system,” says Jeff Yackley says, “is that we are saving money in scrap costs because we are not limited by what we bring onto the route at any one time. I am not aware of any other plant in the country that has this kind of system.”

*noax Technologies develops, manufactures, and supports fully enclosed industrial touch panel computers for challenging environments such as food processing, manufacturing, warehousing and mobile applications.*

**Source URL (retrieved on *07/28/2014 - 9:51am*):**
http://www.chem.info/news/2009/09/processing-industrial-pcs