

Case Report

noax rackmount pc at an aluminum die cast parts manufacturer for the auto industry



Industrial PCs

at Georg Fischer Druckguss GmbH

Completely sealed – IP65

For extreme requirements

Simple touch screen operation

noax[®]
Technologies

noax industrial PCs withstand the most extreme environmental conditions

Georg Fischer Druckguss GmbH of Georg Fischer AG utilizes noax Compact Industrial PCs for their production for machine control and machine data acquisition (MDE), as well as for personnel time management (PZE).

Extreme environmental conditions are at their worst during the production of light alloy, die cast parts. Metallic dust, oil saturated steam and liquids, high temperatures, jarring and vibration are all part of the daily shift operation. When industrial PCs are used in such a rugged environment, their requirements are extremely high. Prerequisite for the use of PCs is a completely sealed construction, according to safety standard

Overview

Customer:

Georg Fischer AG, a world-wide leader in high-quality, cast components and systems of alloy metal for the automotive industry (www.georgfischer.com)

Requirements:

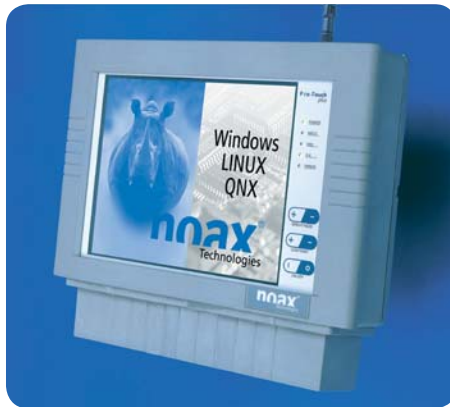
- rugged and reliable industrial computer
- completely sealed - IP65
- resistant against oil steam
- heat resistant up to 122°F
- protected against shock and vibration
- easy access to service areas
- easily accessed by touch
- Windows NT compatible
- multiple interfacing
- SPS connection, WLAN integration

Installed noax product: C12

- noax N6A motherboard
- Intel Celeron - 400 MHz
- 12" TFT display (800 x 600)
- IP65 - resistive touch panel

Product uses:

- fail-safe control of aluminum die cast machines
- machine data acquisition
- visualization
- quality assurance
- personnel time management



noax Compact IPC C12 with wireless LAN

IP65, which totally protects the computer from aggressive oil liquids, oil steam and metallic dust. Another prerequisite is to discontinue the use of interference-prone external fans, which can quickly clog up and fail under certain conditions. In addition, the ruggedized computers have to be able to prove their extreme ruggedness and reliability in constant vibration and hard shocks. For that reason, shock-resistant enclosures, the non-use of cable-bundling and highly rigid component attachments are indispensable. However, simple operability with safety gloves and very legible displays are also important, particularly when they are permanently covered with oil.

Requirements, which are totally met by the noax Panel PC Compact Series were decisive in the purchase decision of noax equipment.

Georg Fischer Automotive

Georg Fischer Automotive, an enterprise of Georg Fischer AG develops and produces high-stress, die cast parts for the auto industry and its suppliers. With approximately 6,000 employees and sales of 1.59 billion Swiss Franks (2003), Georg Fischer Automotive is the technological leader of all types of casting processes for mass-production (sand casting, chill casting and die-casting), as well as materials (iron, aluminum and magnesium) in Europe.

Today, the internationally active entrepreneur group is made up of three technology units: cast iron, sand and chill casting, as well as alloy metal die-casting. The product uses range from running gear components, such as axles, steering and brakes, including driving gear components, such as transmission casings and motor parts, to chassis parts such as A, B or C columns, doors and mid-consoles.

Innovation has a large tradition with Georg Fischer Automotive

For decades, Georg Fischer Automotive has offered innovative solutions for the auto industry. The strong point of the company is its quick and flexible reaction to market requirements, such as the trend for lighter vehicles, or the transition from mounted parts to integrated cast compo-



Aluminum smelting furnaces with a capacity of 10 to 20 tons

nents. The Technology Unit Leichtmetall Druckguss of Georg Fischer AG is constantly developing new types of components which surpass previous solutions in functionality, weight reduction and aesthetics. Examples of this are strut unit supports made of aluminum. In contrast to extruded steel strut unit supports, these facilitate simpler assembly, enable enormous weight savings, and allow for desired compatibility. Because of this, engine compartment construction is no longer dependent on strut unit supports, which in turn allows for a completely new type of chassis conception, thanks to the innovative products of Georg Fischer.

Customer references

Today, almost all well known auto manufacturer and suppliers trust the products of Georg Fischer Automotive.

Just a few of their customer reference list:
Audi, BMW, Ford, Mercedes-Benz, VW, Porsche, Opel/GM, Renault, MAN, Volvo, Bosch, Delphi, ZF, Thyssen-Krupp, Siemens, etc.

The production of alloy metal die cast parts by Georg Fischer Druckguss GmbH

Production of aluminum die cast parts takes place at Georg Fischer Druckguss GmbH within the framework of a very modern production process called "Just in Time." They deliver yearly approximately 10,000 tons of aluminum ingots by truck. After delivery, they go directly to the melting house, where the alloy metal is melted down at 1,382 F in four smelting furnaces having a capacity of 10 to 20 tons. After the smelting process, the liquid metal is poured into individual casting crucibles, which are brought to the individual die cast machines by forklift, where they are filled under enormous heat conditions. From here, noax C12 IPCs take over the machine control. The industrial PCs are directly connected to the die cast machines by an SPS interconnection via a programmable interface. The Striko West ovens, filled with liquid metal, hold the aluminum at an optimal processing temperature, while only the amount of aluminum necessary for each component is poured into the die cast cell. From the die cast cell, the liquid metal is then pressed into each respective form under high pressure. Subsequently, ABB robots take over the removal of the component. Toget-



Machine data acquisition (MDE) with noax C12

her with the Windows NT based visualization software Victory, by Scharnagel, and the use of an additional task control interconnection, the noax industrial PC takes over control and visualization during the entire processing procedure through a serial interface. By a touch screen, the machine operator can quickly and easily intervene in the production procedure at any time. The machine data is fed directly to the company

network by wireless LAN, where it then becomes available for quality assurance. After casting of individual aluminum components and other additional processing steps, in-house production of transport containers takes place, followed by timely delivery to the customer by truck. Using "Just in Time," the components by Georg Fischer are seamlessly integrated into the current production procedure.

In addition to the three noax C12 industrial PCs for machine control, Georg Fischer Druckguss GmbH also installed an additional five C12 industrial pcs for personnel time management. Positioned in an easily accessible location for the operators, simple and quick data entries are made possible by the use of a touch panel.

The use of noax C12 panel pcs – the right decision

Decision-makers of Georg Fischer chose the rugged and reliable noax C12 IPC because of its extremely positive experiences in the plant in Austria, as well as because of its favorable price and output relationship. This was demonstrated by the industrial versatility of noax computers, which is based on longevity and fail-safe operation, active service and support of the in-house developed motherboard, as well as the long-term availability of spare parts for at least five years.



Extreme environmental conditions: aggressive oil steam and extreme heat during production



Smelting of alloy metal at 1,382°F

noax industrial PCs are designed specifically for hard, 24-hour industrial use. This is why noax computers master the rugged requirements as they exist at Georg Fischer without any problems: extreme heat in close proximity to red-hot aluminum, aggressive oil steam and liquids, and constant confrontation with metallic dust. In order to be able to function in such extreme surroundings without problems, the C12 offers a number of well-thought-out features: a rugged, high-impact and completely sealed Notyl enclosure, based on safety standard IP65, a massive aluminum rear wall, as well as special IP connectors, which protect the internal workings of the industrial PC from the intrusion of steam, liquids and dust particles, and therefore prevent the destruction of electronic components. The service area is located on the underside of the enclosure, and is easily accessible, if necessary. The bright 12" TFT display, with a resolution of 800 x 600, offers excellent legibility, even under the worst conditions; heavy dirt accumulation or unfavorable viewing angles. The resistive touch panel facilitates secure and simple operation, even with safety gloves. In addition to the completely sealed construction and the non-use of external vents, the C12 offers high-value and industrially useable technology, high performance and great compatibility, as well as expansion opportunities. The noax touch panel pc can be

outfitted with three different noax all-in-one motherboards according to demand. Intel processors of 400 to 700 MHz, extensive outfitting with on board interfacing and an Ether card, as well as the numerous expansion possibilities via PCI and ISA open the possibility for connecting diverse peripheral units. All noax embedded computers are outfitted with a micro controller as a standard feature, which automatically takes over numerous supervision and control functions, such as voltage and temperature. Control of background lighting is especially important in this regard, which assures an increase of the CCFL lifespan.

No problems with the noax industrial computer

Georg Fischer Druckguss GmbH has been using noax industrial PCs for two years. The compu-

ters run 24 hours a day, 7 days a week and 365 days a year. There have been no malfunctions. We look forward to continuing our good joint venture in the future.

Georg Fischer Automotive has already been using the rugged and reliable noax C12 computers at its plants for three years. There is a total of 29 IPCs in use at the machine, personnel, and operational data acquisition sites.

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The completely sealed noax C12 rackmount pc installed in a control console

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