

The productivity booster

Reliable functioning and failure-free operation are considered basic prerequisites in the field of industrial PCs



An equipment optimisation of the industrial PCs targeted at 'increased system availability' is one of the easiest possibilities of improving productivity by minimising downtimes, even though the ambient conditions in the industrial sector are much harsher than in offices.

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Industrial PCs (IPC) usually have to support 24-hour operation. If the process is interrupted due to a computer problem, for example resulting from production failures due to machine downtimes, high follow-up costs are involved. Usually, these costs bear no relation to the IPCs' purchase costs, which ensure that the slightly higher costs for increased system availability are soon paid off.

PC malfunctions are mostly caused by electromechanical components, i.e. drives (hard disks, optical drives, floppy) and fans. The risk of failure of such components increases after a certain operating time, thus, it is recommendable

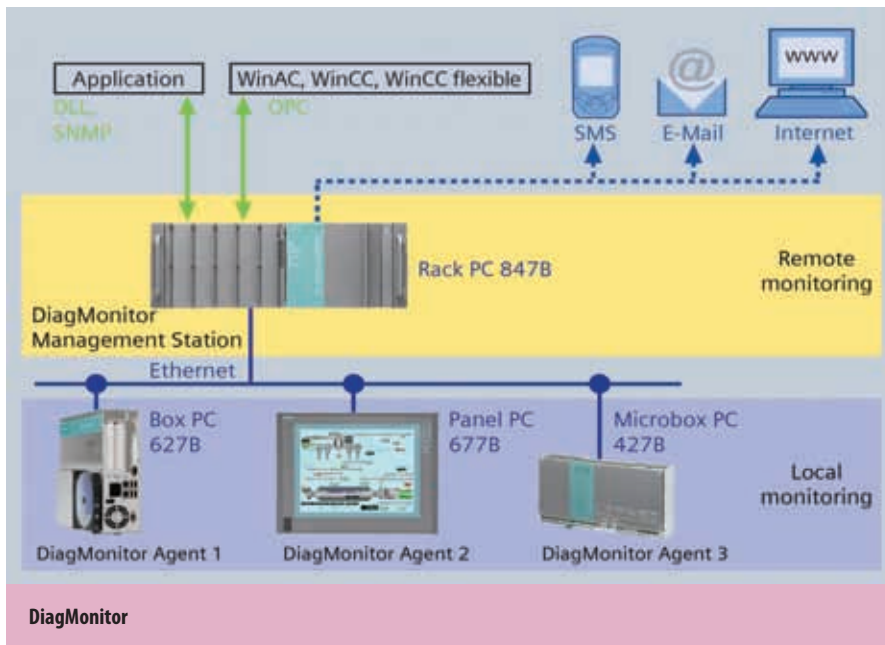
to replace them after expiration of a longer period of operation as a precautionary measure. It is, however, difficult to predict the period of safe operation as a generally valid statement cannot be made due to the highly individual application conditions of PCs.

Monitoring issues

The Simatic PC DiagMonitor software tool, available as optional feature for all Simatic PCs by Siemens offers a diagnostics functionality. With this tool, engineers are informed on problems via SMS or e-mail. DiagMonitor monitors all movable components such as hard disks and fans,



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provides information on the temperature in the processor core and computer enclosure and, above all, the diagnostics tool can be programmed in a way which ensures that the appropriate measures are implemented in case of emergency. It brings the system to a safe state, e.g. by executing a batch file, or shuts down the PC in a controlled manner. In network configurations, it also facilitates monitoring of Simatic PCs from a control station. At this management station, the corresponding error message is visually displayed. The diagnostics data can be read out and processed or visualised by means of visualisation software such as Simatic WinCC via OPC or SNMP protocol. An integrated webservice allows for the display of data and the acknowledgment of error messages in any internet browser. It supports easy login also for external engineers and the customer support. Problems such as fan failures can be identified and rectified or limited via the remote maintenance functionality.

Data back-up for data security

Despite comprehensive precautionary measures and utilisation of all diagnostics options, the possibility of failures cannot be completely excluded. In worst cases the system must be restored as fast as possible. A defective component can often be rapidly replaced. If, however, such replacement

results in a loss of data, their restoration often causes considerable time and cost expenditures. Back-up files allow for fast restoration and are therefore extremely helpful in case of such system failures.

User data such as process data and measured values should be regularly stored on a physical data carrier by means of a back-up program, which may for example, be included in the scope of supply of the operating system. A popular alternative is offered by RAID systems, which simultaneously store the data on two hard disks. For almost all Simatic PCs (except for the Microbox PC due to its compact dimensions), an optional onboard RAID system can be ordered. Additional plug-in cards for the RAID controller are then no longer required, thanks to which all slots are available for user-specific expansions.

If a hard disk has to be replaced in a device without RAID system in case of hardware failure, usually all data are lost. However, not only hardware failures, but also maloperation and sabotage (e.g. hacker attacks or bugs) may result in data loss. One of the most frequent operating errors is the disconnection of the power supply via the central switch-off unit of a system component before having shut down the IPC. If this occurs at a critical point in time, even system files may become corrupted, making a re-start of the operating system impossible. A 'normal' power failure may

entail such consequences. In all cases mentioned, the system operability can be most rapidly restored by re-loading a hard disk image.

Integrated image back-ups

A back-up of the operating system's partition with the user software by means of a hard disk imager is strongly recommendable after completion of the installation. It is the only way to ensure a fast and bit-by-bit restoration of the installation. When selecting the imaging software, major importance should be attached to universal applicability as IPCs with different performance classes, hardware equipment and operating systems are used in many fields of application. It is particularly advantageous when all devices can be protected and restored with the same software. The Simatic PC Image Creator back-up software meets these requirements for all Simatic PCs and is independent of any operating system. Back-up is carried out in a separate DOS environment, which ensures a considerably faster back-up process compared to back-up during ongoing operation and supports the integrity of all files as the actual operating system is inactive and active access is not possible or access restrictions are imposed. The software need not be installed, which offers the advantage that the user's operating system installation is not modified and no memory space is required on the hard disk.

Reduced costs thanks to increased availability

Industrial PCs have become well-established in the field of automation technology. IPCs are powerful and reliable devices which, however, are not immune to accidents, failures and wear. Software options for diagnostics and data back-up such as Simatic PC DiagMonitor and Simatic PC Image Creator provide support and produce savings during operation which exceed the additional purchase costs by far. Therefore – think economically and look beyond the purchase price! ■

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