# Kontron Solutions@Work

## We create digital brains for a more intelligent world

Innovation in Vending Machine Technology using Kontron's ETX Modules

# Virtual Wares from tobaccoland's Vending Machines

No firm in Europe operates more cigarette vending machines than tobaccoland Automatengesellschaft mbh & Co KG in Mönchengladbach, Germany. Around 80 billion cigarettes are distributed from the company's 180,000 vending machines each year. Every second, 12 packs of cigarettes are sold via tobaccoland vending machines. The company's profits totaled 1.157 billion euros in 2003. But for tobaccoland, dominance in the cigarette vending machine market is not enough. With the new vending machine concept 'e-loading', the company has cornered the virtual merchandise market for automated vending.



The brain behind the e-loading vending machine is Kontron AG's new ETX module.

The trade in cigarettes is not the only core competence of tobaccoland, even though it is the main business area of the company. Its core business is best described as the 'automated sale of mass goods', which rests on its in-depth knowledge of vending machine sales and a Germany-wide network of branches which stock and manage vending machines.




Already, in addition to cigarettes, tobaccoland sells prepaid cell phone cards from vending machines. Tobaccoland is currently developing its vending machine technology to increase the variety of products sold from indoor and outdoor machines. The latest innovation: e-loading vending machines.

**The e-Loading Vending Machine – Concept and Benefits**

The basic principle of the e-loading vending machine is contained in its name: it sells no actual physical products like cigarettes or prepaid cards, but instead supplies digital merchandise and 'virtual rights'. It is already serving prepaid cell phone card customers as a refill station for their cards. In the future, it will offer products such as ring tones for cell

phones and tickets for soccer games or mass transit. Entrance passes and transit tickets will be issued by an integrated printer, on security paper.

The great advantage of e-loading vending machines is obvious: the huge logistical problem of stocking the machines is completely eliminated as it is done electronically, by data transmission. Every system is connected to a central computer via a wireless modem. Tobaccoland restocks the electronic merchandise, performs software updates, monitors the system status and maintains the vending machines using this connection. Since the system hardware seldom requires on-site maintenance, the e-loading vending machine rarely requires a visit by an employee of the vending machine company.




**The e-Loading Vending Machine - Technology**

From the outside, the e-loading vending machine looks similar to an average cigarette vending machine, however with a distinctive design. It communicates with the user through a 10.4 inch touch screen which is as robust and vandal-proof as the rest of the outer shell.

Within the system, the latest PC technology is at work. An industrial computer system custom-tailored for operation in e-loading vending machines was developed by German company ies industrie-Elektronik Schmitz GmbH & Co KG, of Kierspe, together with tobaccoland and the vending machine manufacturer Sielaff GmbH of Herrieden.

The system requirements were demanding as the computational power needed to be sufficient to keep the GUI of the 10.4 inch screen user-friendly and flexible, and also to allow the display of advertising videos. Tobaccoland wants the flexibility to use the vending machine to sell an array of different products and also to reprogram it quickly to offer new ranges. The processor needs to run several applications simultaneously and must also allow for new processes to be easily implemented.

In spite of all the performance requirements, the processing unit had to be designed for fanless operation in order to make the vending machine as fail-safe as possible. The entire hardware had to operate around-the-clock, unaffected by the harshest climatic conditions. Additionally the entire system should be easily adaptable to technological development over the years, particularly progress in processor technology.

**Computer-on-Module: Focusing on the Essential**

To concentrate on the functions and requirements relevant to tobaccoland without having to develop all features from scratch, ies turned to the Computer-On-Module (COM) concept for the central processor of the e-loading vending

machine, for which Kontron Embedded Modules in Deggendorf offers a complete product portfolio. The processor and the corresponding chipsets are already integrated on a COM and blended into a functional unit. Only fully functional signals, which are needed for communication, are implemented. The user-specific features are on the baseboard, to which the COM is solidly bolted.




**The ETX Family: Fanless and scaleable PCs on Modules**

The performance requirements for the processor at the heart of the e-loading vending machine called for the newest PC technology. Embedded systems require this technology if several applications must run flexibly within one system, as in the case of the e-loading vending machine. For this reason, ies chose the ETX module family from Kontron's COM product portfolio. The ETX modules provide PC functionality and eliminate the need for a ventilation fan.

ETX COMs all have exactly the same form factor, but offer an extensive selection of processors: from the current Pentium M processor to economical entry-level types from all important PC processor manufacturers. The ETX modules reduced development time for ies, and allowed it to concentrate on designing the baseboard and integrating the system into the e-loading vending machine. Even more important for vending machine and kiosk system operators, however, is the uniform form factor of the ETX boards.

This allows tobaccoland to constantly adapt its vending machines to new requirements and technical developments without needing to modify anything within the vending machine other than the ETX modules - and all this for the entire ten-year lifespan of the systems.

The ETX standard was developed by Kontron, but has now become an open standard and is overseen and further developed by the manufacturer-independent ETX Industrial Group. For manufacturers of kiosk systems this means that they can implement modules from approximately 50 manufacturers in their systems.

**About ies**

Ies Industrie-Elektronik Schmitz GmbH & Co. KG, a mid-sized company from Kierspe in North Rhine-Westphalia, is a system partner and distributor for Kontron and has over 35 years experience in measurement, process control and automation technology. For the last 10 years it has been active in the area of embedded computer technology. The abbreviation 'ies' also

stands for 'intelligent embedded systems'. In the year 2004 it earned a profit of 2 million euros on COM sales and custom-made client applications based on COM standards from Kontron. Ies sees itself as a premium developer of Kontron-based products and, as a result of years of close cooperation with its partner Kontron, makes industrial computer systems possible in the most challenging applications.

**About Kontron**

A leading global embedded computer technology company, Kontron supplies a diversified customer base of OEMs, system integrators and application providers in the communications, automation, transportation, medical, military, aerospace, and test and measurement markets. The company helps its customers to considerably reduce their time-to-market and to gain a competitive advantage with products including high-performance open computer platforms and systems, single board computers, man-machine interfaces and mobile computers. Kontron employs more than 1,800 people worldwide and has manufacturing facilities in Europe, North America and Asia Pacific. The company is listed on the German TecDAX 30 stock exchange under the symbol 'KBC.' Kontron is a member of the Intel Communications Alliance. For additional information on Kontron, please visit: www.kontron.com.

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