



REVIEW/Technology

- 6 An architectural foundation of the Internet of Things**
By Roberto Siagri

The article examines the current architectural solutions for the Internet of Things. Special emphasis is placed on the Eurotech's complete off-the-shelf solution and the key benefits of using this solution. Also discussed in detail are the components of this solution such as gateway software and cloud platform which are the open source software products hosted by Eclipse Foundation.

- 12 Big Data technology enhances the automated process control system**
By Sergey Soldatov

Traditional information processing technologies no longer keep pace with its galloping growth. The specialized solutions and technologies included in the catch-all term Big Data are now taking their place. The article shows what is at the back of this term and whether Big Data solutions can be used for the automated process control system.

- 18 Examination of industrial Big Data tools**
By Aleksei Zhirkov and Maxim Popov

This article examines how to process Big Data in the automated process control system and what hardware resources can be used to process such data in industrial enterprises. Also discussed are the typical structures of Big Data and solutions for working with these structures based on the state-of-the-art information technologies.

REVIEW/Industrial Networks

- 30 Russian-style DNP3**
By Aleksei Medvedev

The article provides a brief description of the structure, functional flavor and advantages of the DNP3 Protocol. Also discussed is the implementation of the protocol in the FASTWEL distributed I/O system.

REVIEW/Hardware

- 38 Data acquisition system from Dataforth Corporation**
By Aleksandr Konstantinov

The article gives an overview of the SLX200, SLX300 and MAQ20 data acquisition systems from Dataforth Corporation. Also discussed are a modern line-up of devices, the key features of the new MAQ20 system and the current version of ReDAQ software.

DEVELOPMENT/Metallurgy

- 46 Control system for the rotary charging unit of blast furnaces**
By Victor Tkachenko, Temir Boranbayev and Andrey Dyatlov

The article describes a hardware-software complex to control a new charger of blast furnaces having a rotary unit for charging burden materials. The complex includes a system to control the charging route train using modern programmable logic controllers, computer simulation model of the charging process, burden surface profile control system based on the periscopic principle of level measurement by a radar level gage that allows for monitoring the surface shape of the blast furnace burden on the computer display.

- 62 Specific features of the software-hardware complex upgrade project for the automated process control system of converter gas exhaust duct**
By Anatoliy Krivososov, Aleksei Krivolapov, Aleksandr Pirogov, Andrey Pirozhenko, Sergey Panasenko and Dmitriy Zheltikov

The article presents the structure of the software-hardware complex for the automated process control system of the gas exhaust duct at the #2 converter with full combustion of converter gas and wet gas cleaning system in the Oxygen-Converter Shop at the Mariupol Metallurgical Plant named after Ilyich, PJSC. A feature of this complex is that it maintains the safe modes of operation even when the main controller fails. For this purpose, a protection controller with the appropriate software has been added to the programmable logic controller of the automated process control system.

DEVELOPMENT/Aviation

- 68 Stand for ground testing of the rotor system of an unmanned coaxial rotor helicopter**
By Sergey Atilyuev, Pavel Golovanov, Dmitriy Laptev, Aleksandr Popov, Andrey Matveev, Aleksei Balashov and Aleksei Yashin

The article focuses on the experience of building an automated stand for ground testing of the rotor system of an unmanned aerial vehicle (UAV) helicopter (drone). Also discussed are the structure and functions as well as the applicability of the hardware and software of the test stand.

DEVELOPMENT/Monitoring and Measuring Systems

- 76 Process control based on weight measurement**
By Lyubov Babushkina

The article presents advanced solutions for a number of typical tasks to control the continuous and discrete production processes based on high-precision dynamic weighing of objects, bulk materials and liquids. The major benefit of such purpose-built solutions is the ability to release the universal programmable controller from performing the tasks to process data from weight measuring instruments and implement complex algorithms without programming through the flexible adjustment of the preset program.

DEVELOPMENT/Construction Materials Industry

- 82 Upgrade of the OSAMA SV4-350-1800 automatic gluing machine**
By Mikhail Karpov

The article describes an automatic gluing machine upgrade project whose purpose was to improve the equipment efficiency and compliance with the required modes of operation. When building the system, cost minimization was achieved through the use of SIEMENS LOGO! PLC and other cost-efficient components. Also discussed are the component selection principles with consideration for process features.

DEVELOPMENT/Building Automation

- 86 Energy-efficient warehouses using the Thermokon EasySens technology**
By Dmitriy Kabachnik

The article offers a brief overview of the EasySens system from Thermokon (Germany). The system is based on the EnOcean wireless protocol. Also discussed is the successful experience in upgrading a large warehouse located in a rather harsh climate through the use of the self-powered wireless thermostats and sensors.

DEVELOPMENT/Research

- 90 ADCM M-1 – the USSR champion among the first digital computing machines**
By Yurii Rogachev

This brief article has been prepared to commemorate the 65th anniversary of the start-up of the Soviet Union's first analog-digital computing machine (ADCM M-1). The article is about the history of creation of the computer, people involved in the development of the computer and the basic specifications of the M-1 computer.

DEVELOPMENT/Training Systems

- 92 PROSOFT distance learning courses, or “Strangers are allowed to enter”**
By Svetlana Zakharkina, Vera Nikolaeva, Olga Vlasenko and Natalya Gruzdeva

The article covers the advantages and specific features of the new exclusive distance learning courses which will be soon open for enrollment at the PROSOFT Training Centre website. These courses are unique because real equipment will be used when carrying out the learning activities to practice theoretical knowledge.

HARDWARE/Information Display

- 96 Review of solutions on group displays in dispatch rooms at fuel and energy facilities**
By Denis Rubio

The article offers an overview of modern hardware and technologies as well as the software solutions for the group data display systems in dispatch rooms at oil and gas facilities. The review investigates both positive and negative aspects of the various solutions and shows some specific features of equipment installation in dispatch rooms.

ENGINEER'S NOTEBOOK

- 104 Perspective concepts in conductive cooling of single-board computer systems through the example of the Schroff Interscale C case**
By Yurii Timonin

The conduction cooling is widely used when designing the highly reliable single-board computers. The efficiency of this cooling method may depend on many factors. In most cases the development of each device requires an individual approach, and this has an effect on the price. However, the new Schroff developments in this area allow for overcoming certain constraints of the traditional solutions and simplifying the replication of the new computer systems.

- 114 Customized iKey rugged keyboard for Durabook R11 tablet**
By Dmitriy Kabachnik

The article is about the customized rugged keyboard from iKey for the Durabook R11 tablet. Also discussed are the benefits of using rugged keyboards in industry in conjunction with ruggedized PC tablets.

- 118 Cyber security checklist for automation technicians**
By Anna Tabulda and Svetlana Chernushchenko

The article offers a cyber security checklist based on the incidents and information security best practices for the automated process control system. This checklist will be useful for automation technicians who might know nothing about information security. This will better protect the automated process control system against cyber-attacks and also help save on material costs.

SHOWROOM

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SYSTEM INTEGRATION PROJECTS IN BRIEF

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