Monitran Launches New Dual-Output Sensor

Monitran, the manufacturer of sensors and condition monitoring systems, has launched the MTN/2285STC, a dual-output sensor ideal for monitoring vibration and temperature levels in the same location and for protecting motors, fans, pumps and other assemblies with rotating parts.

Both the sensor’s outputs are in the industry-standard range 4–20mA and are suitable for direct connection to a programmable logic controller (PLC), distributed control system (DCS) or other industrial controller.

Andy Anthony, Managing Director of Monitran, comments,

Changes in vibration or temperature levels tend to provide the earliest indication that a piece of plant or equipment is in need of maintenance, and in some cases warrants shutting down to avoid damage. With our new dual-output sensor, engineers can connect directly to any equipment that accepts inputs in the 4-20mA range in order to monitor both parameters for maintenance, control or emergency-shutdown purposes.

The MTN/2285STC is a stainless steel side-entry transducer, sealed to IP65 and supplied with 5m of integral stainless steel over-braded ethylene tetrafluoroethylene (ETFE) cable as standard with other lengths available upon request. Its dynamic range is 50g (peak) and the sensor has a frequency range of 16–720Hz (±10%).

The sensor requires a direct current (DC) supply voltage in the range 12–32V. Its vibration output is proportional to root mean square (RMS) velocity with a range of 0 to 10, 20, 25, 50 or 100mm/s; to be specified at order. The sensor’s temperature output sensitivity is 0.106mA/°C across its operating temperature range of −25°C to 90°C, and it has an accuracy of 0.08%/°C.

Anthony adds,

Most velocity sensors that also measure temperature usually do so because of the addition of an AC output – they produce a voltage proportional to acceleration or velocity. So it is often necessary to convert the voltage into a current, in the range 4-20mA, to connect to monitoring or control equipment. With the introduction of our new sensor we remove the need for the conversion step.

Baghouse Performance Controller Can Cut Costs

Filtersense, the industrial sensor and monitoring equipment manufacturer, claims that large fabric filter baghouses in the power, lime, cement, steel, lead, foundry and chemical industries could lower emissions, reduce energy use and cut maintenance costs by using the B-PAC series Baghouse Performance analyser and controller.

Optimisation and diagnostic controllers tightly integrate advanced leak detection, intelligent filter cleaning, pressure sensing, particulate monitoring and a wide range of control functions into a single point control system that is ideally suited for multi-compartment fabric filter dust collectors. Various fieldbus networking options, including Ethernet, DeviceNet and Modbus, paired with local control and smart remote input/output (I/O) modes allow seamless interface with the existing plant DCS and PLCs.

ARC Launches Survey on Industrial Internet of Things

ARC Advisory Group has launched a market survey to discover how ready organisations are for seizing the many opportunities offered up by the Industrial Internet of Things (IoT). The survey is open to suppliers of industrial technology and equipment, machinery manufacturers and industrial companies, such as manufacturers and oil and gas operators. All participants receive a free summary of the key findings. The survey can be found at https://www.surveymonkey.com/r/iiolet2015
Perfecting the Human–Machine Interface

COPA-DATA has been an active partner in a study by Fraunhofer IAO that examines successful human–machine interactions (HMI) in industry. The study provides insight into ergonomic HMI design using new technologies such as social media, interaction and recognition technology.

The project, which runs until May 2016, is developing operational aids that can be implemented in the HMIs of the future. The project will generate the useful aspects of HMI design and performance from as many perspectives as possible.

Machine operation in today’s industry is problematic. Limited numbers of employees have the know-how to quickly and successfully repair a fault, and machine configuration is often left to individual experts whose expertise is poorly recorded. Entire plants are therefore dependent on a few individuals and their availability. The project is developing the interfaces that HMIs should present in order to allow configuration and operational data to be shared across the company in a simpler and more reliable way.

The project is developing findings from topics such as gamified design, psychology or awareness and learning collected in order to bring together useful and necessary components, ensuring that the end-result meets the requirement for knowledge sharing across the company and is commercially viable. Concepts are then turned into working prototypes, using COPA-DATA’s automation software Zenon.

Future HMI prototypes should efficiently support operational error handling. They should become a tool to relay their machine operating knowledge to the expert more easily. The background system must additionally carry out important quality assurance tasks. The HMI should provide operational analysis of data in a user-friendly way, allowing users to update system knowledge quickly and easily.

Mitsubishi FX5 Takes Compact PLC Performance to the Next Level

RS Components (RS), the global distributor for engineers, has introduced the latest Mitsubishi FX5U compact PLCs, which extend the capabilities of the popular FX PLC platform with increased CPU performance and extra built-in functions including sophisticated position control.

The FX5U PLCs are part of the new Mitsubishi MELSEC iQ-F family, which features an ultra-fast 34 ns/step sequence-execution engine with 64k-steps program capacity, and 150 times faster system bus speed allowing maximum performance even when handling large quantities of data.

New built-in features enhance support for the IoT and Industry 4.0 applications, including an ethernet port that enables remote maintenance and advanced security, and an SD Card slot for data logging and program updates. Other built-in features, such as eight channels of high-speed pulse inputs and four-axis pulse outputs, allow developers to create more powerful systems for applications such as controlling packaging machinery, using fewer modules.

RS is stocking six FX5U PLC variants with up to 80 I/Os and relay or transistor outputs, plus compatible modules including digital I/O expanders, serial interface adapters, bus-conversion module and SCNET III/H-compatible motion-control module. Configuration using the familiar GX Works3 environment is also easier, with enhancements such as table-based parameterisation, motion setup tools and extra positioning instructions.

Pentair Introduces 2-Slot MicroTCA with embedded MCH

Smaller MicroTCA systems are used primarily for digital video and image processing, in automation and machine control systems and electronic signal processing. Applications in these areas often require just one or two AdvancedMC modules, but high data rates over the backplane are still necessary. That is why Pentair has joined forces with the Bonn-based Gesellschaft für Netzwerk- und Automatisierungs-Technologie mbH (N.A.T.) to develop a new 2-slot Schroff MicroTCA system. The ‘embedded MCH’ (eMCH) used in this system allows communication between the advanced MC modules and system monitoring (including power and cooling management), thus ensuring a high level of reliability. In addition, the 1 GbE switch connected to the 1 GbE uplink on the case front of the eMCH enables system components to connect to an existing network infrastructure.

The new 2-slot Schroff MicroTCA system is designed to accommodate one or two single- or medium-size MicroTCA modules: using a small form-factor integrated eMCH instead of a double-size pluggable MCH module reduces the overall dimensions of the system to a very compact 260 mm width, 43 mm height and 302 mm depth. The cooling unit, consisting of four fans and air filters, is installed to the right of the modules. Cold air is drawn in from the right and guided left through the system. An additional fan is located in the rear on the left next to the backplane, ensuring a cooling capacity of 150W at an ambient temperature of +55°C.

An open-frame power supply units (PSU) matched to the system with a capacity of 150W ensures consistent power supply. All ports are linked on the MicroTCA backplane for large data transfer between modules.

Simple construction of the system makes it very service-friendly; individual components are easy to replace or maintain. The top cover is removed by undoing a few screws, allowing the fan unit and air filter to be easily replaced. Small indentations in the base and top plates allow rubber feet (included) to be attached. This feature allows for stacking of multiple systems. Systems can also be equipped with 19” brackets and fitted into a cabinet.
Beha-Amprobe's Tracer Simplifies Wire Detection

Beha-Amprobe has introduced the AT-7000-EUR advanced wire tracer with new features and technologies that simplify wire tracing and breaker identification. The tracer, available in two different kits, combines a receiver and powerful transmitter to locate energised and de-energised wires, breakers and fuses.

The AT-7000-EUR features the new ‘Smart Sensor’ patented sensor array combined with an advanced signal processor that measures small changes in the detected signal multiple times per second for ease of use in tracing energised wires in walls, floors and ceilings. Wire orientation and direction, which are displayed on the large, dynamic liquid-crystal display (LCD) colour display, are accurate within 5 cm.

The shape of the tracer’s tip sensor allows tracing in hard-to-reach areas, corners and tight spaces. The ‘scan and locate’ feature identifies a specific breaker or fuse, eliminating the false-positive readings common in older technology tracing tools.

DECC Invests in Smart Meter Project from Guru

Advanced algorithms might soon be used to dramatically improve the energy efficiency of district heat networks. This is the planned outcome of a £6 million funding programme from Department of Energy & Climate Change (DECC), in part, given to London-based firm Guru Systems. This company will use a share of the fund to develop tools to analyse ‘Big Data’ on decentralised heating networks.

The company’s proposal is for a web-based tool to analyse network performance data. Algorithms will be developed that use techniques developed for ‘big data’ applications, recognising patterns in performance data and identify any likely inefficiency sources using information from smart meters, building management systems, M-Bus networks (a system for the networking and remote reading of utility meters) or manual readings. Machine learning techniques will ensure that the algorithms’ accuracy improves continuously as it analyses ever more data.

District heating networks are now becoming common as planning departments promote an ‘eco-first’ approach to new developments. Such networks capture and redistribute waste heat produced by industrial plant, electricity generating stations, public transport networks and – increasingly – data server farms that would otherwise be wasted. This can be used to great advantage by district heating systems, saving energy and money and reducing CO₂ emissions.

In the United Kingdom, a study has found that there is sufficient heat wasted in London alone to meet around 70% of the city’s heating needs. This is why DECC has been trying to increase the number of households connected to district heating networks – from 2% to 3% currently to 40% by 2050 – and this latest spending award is part of this drive.

Guru Systems claims that householders could save an average of £179 average every year by using the technology and implementing cost-effective improvement measures. Not only that, the techniques could be used to save UK heat networks £400 million in reduced energy costs over the next decade.

The company’s smart metering technology has already been installed in more than 3900 properties on 35 district heat networks across the United Kingdom.

Moxa Launches DA-820 Series Substation Monitoring Computer

The DA-820 is specifically designed for substation applications that require precise time synchronisation and adherence to the IEC 61850-3 standards. The flexible design makes the DA-820 suitable for local supervisory control and data acquisition (SCADA), environmental monitoring, video surveillance, protocol conversion and Parallel Redundancy Protocol/High-availability Seamless Redundancy (PRP/HSR) redundancy applications. In addition, the cybersecurity function makes the DA-820 an ideal solution for secure network communication applications.

The DA-820’s main operating system is based on the Intel Quad core i7-3612QE CPU and QM77 chipset, which supports standard X86, 2 VGA ports, 6 USB ports, 4 Gigabit LAN ports and 2 3-in-1 RS-232/422/485 serial ports. The DA-820 is equipped with a 4 SATA disk interface and supports RAID 0/1/5/10 functionality.

The DA-820 complies with IEC 60255 standards to enable the protection of electrical relays in a smart substation. IEC 60255 is one of the most widely used standards for testing relays and protection equipment, and compliance ensures that the DA-820 will work reliably and seamlessly with intelligent electronic devices (IEDs) as a part of the robust substation automation system.

The housing is a standard 3U, 19-in wide, rack-mounted rugged enclosure. This robust, rack-mountable design provides the hardened protection needed for industrial environment applications.
Ensuring the Safety and Security of Industrial Control Systems

ARC Advisory Group has produced a report about process safety and cybersecurity. These are distinctly different disciplines, but there is growing realisation that they are related. Today’s industrial organisations face the common goal of determining the appropriate response for each combination of desired security and safety for various parts of their industrial control systems.

New VEGA Level Sensor Reaches Parts Others Cannot

E&JW Glendinning is the largest independent supplier of quarry and concrete products both to the trade and direct to the end user in Devon and Cornwall. Over recent years, they have embarked upon an expansive programme of modernisation and automation, creating a state-of-the-art aggregates processing and supply facilities, which is essential to their business goals and to compete in the modern aggregates market.

As part of this, the company needed high-tech sensor solutions to deliver the automation and control philosophy they are seeking. The secondary crusher at the heart of the screening and grading plant in the quarry is typical of this requirement. The feed hopper above it is a critical process control point; this is where the majority of aggregate comes through at some stage. It is a noisy, dusty environment, with unpredictable flow patterns and material behaviours. The crusher itself is capable of processing up to 400 tonnes an hour and the whole plant 4000 tonnes a day.

With this level of throughput, it is vitally important to get accurate information and control to optimise productivity, energy consumption and product quality from the crusher. Originally, as is the case with most sites in the sector, non-contact ultrasonic level sensors were installed. However, the noise, dust and product build-up delivered unreliable performance and high maintenance costs.

The company turned to VEGA to trial one of their new VEGAPULS 69 radar level sensors in this tricky, critical control point. As soon as it was installed on the empty silo, the sensor was able to read right down to the bottom of the bin to the outlet conveyor. The radar has worked successfully without incident for over 3 months, providing a smooth level output to enable operators to effectively control crusher throughput and the conveyor speeds.

So why is this radar so different? VEGAPULS 69 works with very highly focused 79 GHz microwaves, not sound waves, to provide a very small beam angle (3.5°), along with optimised sensor performance for solids handling. All that is needed to set a sensor up is the PLICSCOM display/programmer that simply slots onto the housing that enables access all the information and gets a sensor up and running quickly and easily.

As a result, E&JW Glendinning is installing the sensors across the plant, replacing the existing ultrasonic sensors. Standardising on this non-contact level radar has quickly shown a payback in reduced maintenance, outages and increased productivity for the company.

ZigBee Is a Smart Home Standard

ZigBee continues to increase its share of the IEEE 802.15.4 and smart home markets, according to global technology research firm ON World. In 2020, ZigBee standards will be used in 8 of 10 of 802.15.4 chipset shipments. This trend is expected to accelerate as ZigBee 3.0 unifies its application profiles and the Thread Group provides a standard-based IP addressable wireless mesh network layer.

By 2020, ON World projects that over 80% of IEEE 802.15.4 annual shipments will use a ZigBee standard. However, ZigBee is facing intensifying competition from low-power variants of WiFi and Bluetooth Smart that are gaining momentum from the mobile, IT and consumer electronics industries. Within the next 5 years, ON World projects that annual wireless sensor network chipset shipments will exceed 2 billion.

Yokogawa Use Modular Design for SMARTDAC+

New from Yokogawa is the SMARTDAC+ GM data acquisition system, which improves operational efficiency due to a modular design which facilitates the mounting and removal of modules. In addition, the SMARTDAC+ GM system supports Bluetooth wireless communications for use with handheld mobile devices.

Depending on the application, most data acquisition systems utilise a variety of modules to acquire a wide range of data. With modular I/O, users can scale their data acquisition system based on their process requirement, with the ability to upgrade as their needs evolve.