Electronic breakers can switch eight 24V DC loads individually

THE GERMAN TRANSFORMER and power supply specialist Block has developed a pair of electronically operated circuit-breakers for 24V DC circuits which can switch individual circuits selectively via only two lines, and perform diagnostics. It says that the Power Mini and Power Compact breakers can be integrated into control and monitoring processes at low cost to improve the switching of high-capacity loads and to open up new protection possibilities.

The company claims that, for the first time, the new breakers can be used with a PLC to switch any output channel on or off, to reset tripped circuits, and to call up the status of each output via only two digital I/O. Protected circuits up to 10A can be switched individually.

By switching off loads that are not needed, the breakers can also help to cut energy consumption at a relatively low cost, avoiding the need for power relays and their controls. This will save space, simplify controls, and reduce wiring and other costs, Block suggests.

The digital switching takes place via only one wire between the PLC and the circuit-breaker. The PLC generates a pulse sequence of 17 data bits, and can control its transmission speed. The breaker synchronises automatically to the cycle. A second line provides the operating and error conditions for each output channel synchronised to the cycle.

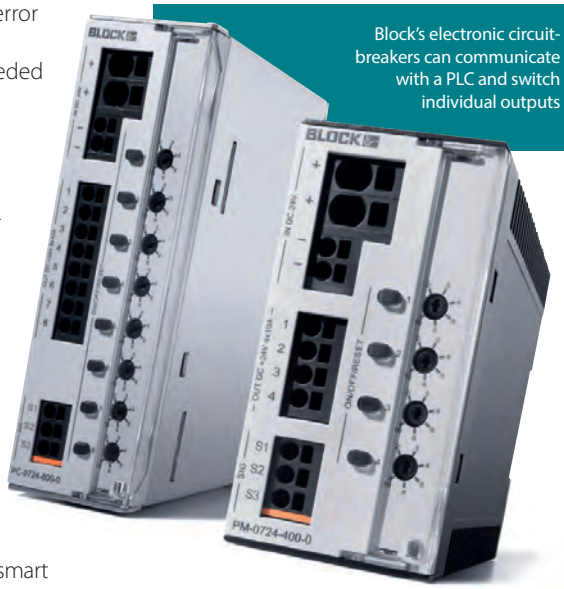
The PLC can analyse these conditions and recognises the status of all protected circuits. For each output, it can transmit the latest operating conditions (on/off) and error conditions (tripped/overcurrent).

To simplify the programming needed to integrate the new devices with a PLC, Block is offering free function modules for Siemens Step 7 and CoDeSys systems.

A challenge for electronic circuit-breakers is to differentiate between short circuits and high start-up or inrush currents. To the breaker, a high start-up current – often caused by capacitors – is almost identical to a short-circuit. Some electronic breakers handle this badly compared to conventional breakers with thermal and magnetic tripping curves.

Block claims that, thanks to a patented switching technology and smart software algorithms, its new breakers do not suffer from this problem and can differentiate precisely between long-lasting short-circuit currents and switch-on current peaks. Depending on the line impedance, a capacity of up to 500,000µF (in addition to the basic load) can be switched per output, independently of the rated current. Even under difficult switch-on conditions (short lines with large cross-sections), more than 50,000µF can be switched reliably per output. Block says this is up to five times more than rival devices.

Up to eight output channels can be switched on, not only at different times, but also depending on the load. When the current of an output channel drops, the next one is switched on with optimal timing. The inrush current for the complete application is equalised and the power supply does not need to be over-sized.



Block's electronic circuit-breakers can communicate with a PLC and switch individual outputs

The output channels can also be switched manually, simplifying start-ups or error-tracking when servicing. The rated current for each channel can be set in 2A steps up to 10A via a front-panel switch. This allows one device to cover many different applications.

Each output on an eight-channel module occupies a width of just 5.25mm, saving rail space or allowing the use of smaller control cabinets. The breakers use push-in-connections for fast and easy installation.
www.blockuk.co.uk

System drives are based on standard modules

THE FINNISH DRIVES-MAKER Vacon has announced a range of AC system drives that will allow systems integrators to offer customers in heavy industries a choice of standard drive modules.

"The Vacon NXP system drive is based on standardised modules, processes and tools, as well as on a tested and verified enclosure design," explains Jari Marjo, Vacon's marketing director for premium drives. "Yet the product is configurable with the help of pre-engineered and tested options.

"Configurability is one of the product's most compelling features," he adds. "Furthermore, we can customise the product according to specific customer needs."

The new range is designed to simplify installation and commissioning, as well as providing users with lifetime benefits, such as low maintenance costs and a reduced need for spare parts and training.

The drives are based on Vacon's NXP and common DC bus ranges. They will be available in various IP ratings, and have CE and UL certifications. For safety, the drives' control and power sections are separate. Pre-engineered options include supply units, fieldbus interfaces, and inverter modules.

Marjo emphasises that Vacon will not be competing with its partners in the projects business. "We want to further enhance our cooperation with partners," he explains. "The Vacon NXP system drive will improve our ability to serve our partners, to be more responsive, and able to provide a broader scope of delivery. This allows our partners to focus on the overall solutions, while we focus on the AC drives."
www.vacon.co.uk