

Michael Koch GmbH presents new product series Pxt

Pxt: Series of devices for active energy management of electric drives

Ten years of market experience and many years of development work have gone into the new devices with the designations PxtFX, PxtEX and PxtRX from Michael Koch GmbH, Ubstadt-Weiher, Germany. They open up new possibilities for the active energy management in electric drives. They are characterized by a wide voltage range, independence from the manufacturer of the drive electronics, and a great variety of applications.

The applications are numerous, and they all build on the idea of temporarily storing the excess or necessary electrical energy largely independently of the grid. The choice of the storage media depends also on the application. For example, Koch uses special aluminum electrolytic capacitors for short and very frequent cycles, double-layer capacitor modules for higher energies and less frequent cycles, and batteries for rare cycles. The connecting part between the drive and the electric storage is the active energy management device or system. Koch has been active on the market with such devices since autumn 2010. The new product series with the sensible name Pxt, which may also be pronounced "P times t" (equal to energy), now reaches a new dimension with significantly higher functionality.

PxtFX for frequent, short duty cycles

Two active devices called PxtFX and PxtRX are complemented by the PxtEX, the modular storage unit with one or more aluminum electrolytic capacitors. The individual applications are manifold, do the devices bring benefits by a single feature or by the combination of two or more features. The first thing that comes to mind is the recuperation of the machine's braking energy, which increases energy efficiency. The PxtFX can save up to 1.2 kilowatt hours of energy in its smallest expansion stage in one-second cycles per operating hour. In relation to the application itself, savings of up to 40 percent can be achieved with the active energy management system based on the PxtFX. Often, however, other benefits play a greater role than increasing energy efficiency, such as the compensation of so-called brownouts, safe and defined standstill during blackouts, the possible acceleration of production processes with output increases of up to 50 percent, the reduction of mains load peaks ("peak shaving") or even the operation of the electric drive independently of the mains supply.

With a current load capability of 20 amps duration and 40 ampere peak for about one minute compared to storage, which may have a maximum voltage of 450 volts DC, the PxtFX can generate up to 18 kilowatts of power. The device can be equipped ex works with a storage volume of two or four kilowatt seconds. Built into the device as standard is the automatic detection of the brake transistor switch-on voltage threshold, which enables the device to work with all commercially available frequency inverters and servo controllers in a plug & play manner. The extensive safety features of the PxtFX protect against reverse polarity of the DC link, against connecting loaded storage devices and overloading the system on both the storage and DC link sides. Koch sees internal fuses as standard. New features of the PxtFX include an SD memory card, an external 24-volt supply, status displays via LEDs, boot loading and reset options and 6 digital I/Os. These are supplemented by output functionalities via a USB module.

PxtEX expands the storage volume

If the storage volume of the PxtFX is not sufficient, the device with the designation PxtEX comes into play. A single PxtEX can store two, four or six kilowatt seconds of energy with its aluminum electrolytic capacitors specially developed for the application spectrum of active energy management systems. Simply connected to the PxtFX via cables with connectors that are

protected against reverse polarity, the storage extension directly benefits the system. The individual storage units are internally protected and indicate their charge level visually via a flashing LED. Integrated into the PxtEX as standard is also a safe discharge resistor, which directly and quickly helps to bring the entire system to a voltage level that is safe for humans. In principle, however, Koch systems are low-maintenance.

PxtRX for higher loads

While the PxtFX device is specifically designed for use in applications with repeat cycles of milliseconds to a few seconds and must be able to do this well over 100 million times over its lifetime, its bigger brother PxtRX is predestined for applications in connection with storage devices of higher energy density, such as double layer capacitors or batteries. The PxtRX is designed for a current load capacity of 30 ampere and 60 ampere peak for about one minute. In combination with a high storage voltage of up to 800 Volt DC, the device is able to generate a power of almost 50 kilowatts.

If this power is not sufficient for the application, several PxtRX devices can be connected in parallel, as can the PxtFX devices. Depending on the application, active energy management systems can thus be created that fill large control cabinets. Under the type designation KTS, Koch offers ready-to-connect complete systems in control cabinets. These include active energy management systems of the Pxt series, application-specific storages, the appropriate fuses, cabling and, depending on the storages used, passive or active discharging devices. One feature in particular helps the PxtRX in such KTS control cabinet solutions: It also works without problems with cable lengths to the DC link of up to 20 meters.

Digital nameplate simplifies the work of many

Common to all devices is the so-called digital type plate. When the QR code of a device is scanned using an app for Android or iOS smartphones or tablets, not only the technical data of the specific device and its specific design are displayed, but also inspection and test protocols and the associated documents such as the assembly and operating instructions. In this way, all users of the device can access the individual documents and information of the device of the Pxt series regardless of location and paper. In addition, management options are provided with which, for example, a machine builder can assign devices with their respective characteristics to a machine or system.

Application engineering, sizing tools, support in selection and testing - this is what Koch stands for in day-to-day business. The devices of the Pxt series will also be available with very short delivery times, fully parameterized ex works, ready for operation directly after connection to the DC link. The PxtFX and PxtRX devices can always be kept up to date with the latest firmware via the SD memory card and are therefore future-proof. All in all, a new device series that makes a positive contribution to the stable energy balance of a machine or system.

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Pictures:

Koch-PxtFX.jpg



PxtFX is the name of the new active energy management device for electric drives from Michael Koch GmbH. The picture shows a PxtFX device with a storage volume of two kilowatt seconds.

Koch-PxtFX-Stecker.jpg



PxtFX is the name of the new active energy management device for electric drives from Michael Koch GmbH. The picture shows a PxtFX device with four kilowatt seconds of storage capacity.

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Koch-PxtEX.jpg



Additional storage capacity is provided by the PxtEX energy modules for the active energy management devices from Michael Koch GmbH.

Koch-PxtRX-Stecker.jpg



Predestined for storage devices of higher power density such as double layer capacitors and batteries: PxtRX, new active energy management device for electrical drives from Michael Koch GmbH.

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