Compact drives with CAN interface

EBM-Papst is continuously expanding its product range of electrical drive systems for industrial applications. This series includes CANopen.

Our customers in the mechanical and plant engineering sector are looking for compact and powerful drive systems that can receive commands from higher-level controllers via standard network interfaces and return actual values and status messages to the control system. A new addition to our range is the new ECI 63.xx K5 series in the power range from 180 W to 370 W. Based on a BLDC internal rotor motor with integrated electronics module, this series includes a standard CANopen interface.

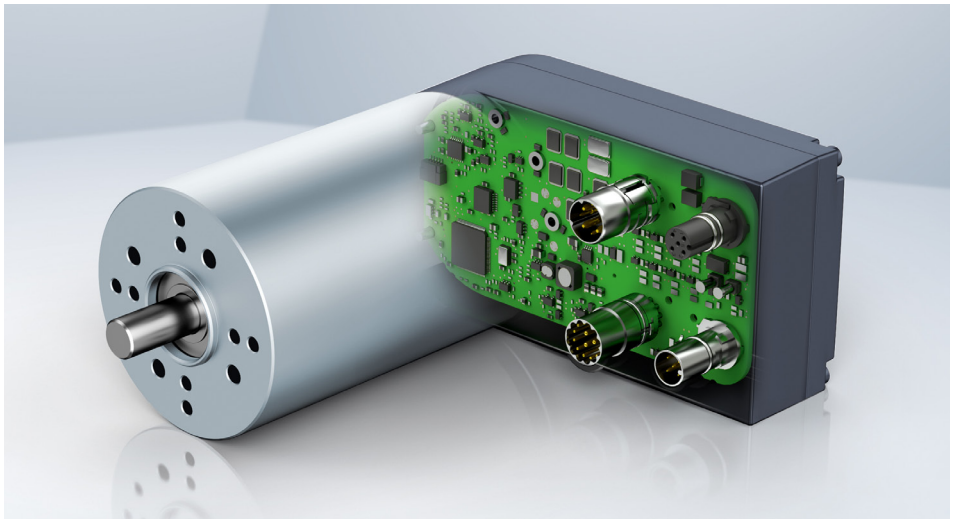
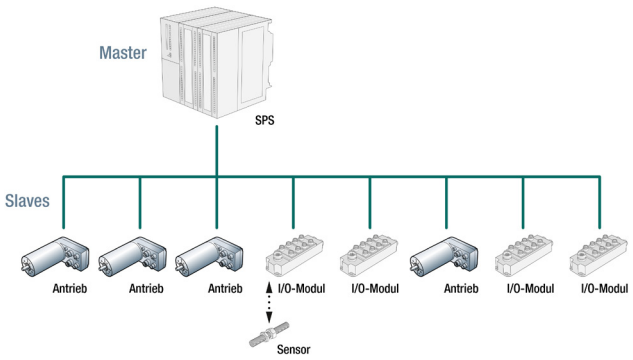


Figure 1: A BLDC internal rotor motor with integrated electronics module includes a standard CANopen interface (Photo: EBM-Papst)

With the integrated, freely programmable sequence control (PLC functionality), technology functions can be implemented directly in the drive; the previously required PLC is thus either unburdened or can ideally be dispensed with altogether. The drive can be controlled via the digital and analog inputs and outputs — our range of Industry 4.0-capable drive systems has thus been expanded to include an additional electronic module.

These compact drive systems offer a cost-optimized alternative to conventional AC servomotors in many applications. Compared to AC standard motors with frequency converters, this series offers increased efficiency and a higher power density.



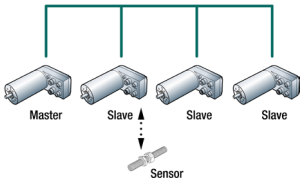
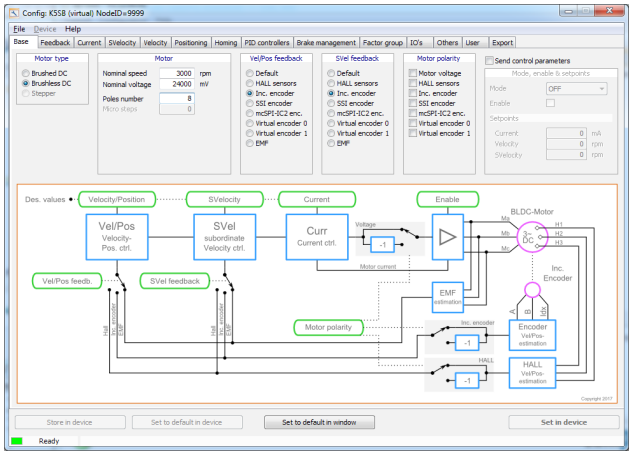


Figure 2 and Figure 3: before/after comparison - Thanks to the integrated intelligence, the drive can be freely programmed in a similar manner to a PLC, what offers the possibility of dispensing with a higher-level PLC (Photo: EBM-Papst)

Although Ethernet-based bus systems are now required in many applications, CANopen remains a popular option when the number of nodes in a system increases. This is because systems with CANopen offer considerable cost advantages in terms of hardware and implementation. The performance of the CANopen protocol is more than adequate for many industrial applications.

The ECI 63.xx K5 supports the communication and motion profiles in accordance with IEC 61800-7 (CiA 402). This means that the drive can be operated with positioning, speed, current, or torque control. Interpolated positioning with cyclic set value requirement is also implemented. Referencing of the drive position can be carried out using normalized homing methods, as well as via a gentle movement onto a blocker/mechanical stop.

In addition, thanks to the integrated intelligence, the drive can be freely programmed in a similar manner to a PLC. For example, the drive's functions are implemented in such a way that it can be controlled virtually at will via the integrated I/Os without the need for motion commands via CANopen. Thanks to the integrated PLC functionality, the drive can also be used as a CAN master. As a result, in less complex applications, networks can be set up that operate as a standalone application ▷



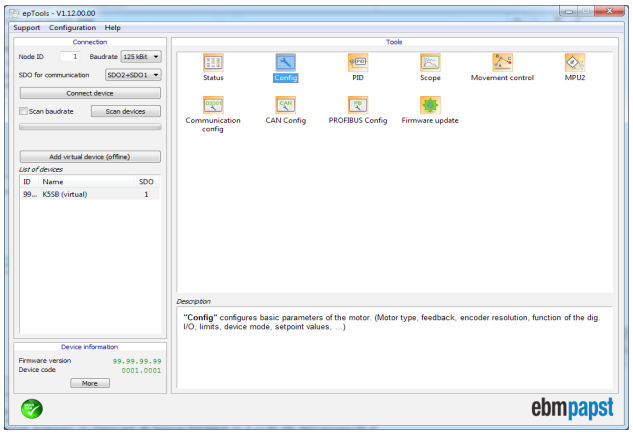


Figure 4 and Figure 5: With the easy-to-use commissioning and parameterization software Eptools, the drive can be conveniently operated directly from a PC via CANopen (Photo: EBM-Papst)

without a higher-level PLC. The possibility of dispensing with a higher-level PLC has a positive effect on the cost situation.

The ECI 63.xx K5 incorporates an integrated encoder system as standard, which resolves the position of the output shaft to 12 bits. This achieves a high degree of positioning accuracy. Even slow speeds and standstill can be smoothly controlled, thus permitting the use of a very wide speed range. With EBM's commissioning and parameterization software Eptools, the drive can be conveniently operated directly from a PC via CANopen. The most important parameters are displayed in the tool's configuration window. Any number of additional parameters can be added to the interface and uploaded to the drive. The entire parameter set can also be saved on a PC. The software is available free of charge. The status window in Eptools enables the relevant measurement values and drive status information to be visualized. As a result, controllers can be quickly optimized and commissioning simplified. The control window in Eptools lets the user operate the drive in different operating modes and directly specify both controller release and setpoints. Digital inputs and outputs can also be set manually in this window. An application-specific program for the integrated PLC can be compiled in another Eptools window and uploaded to the drive.

Those interested in learning more can view the documentation for the new drive solutions (technical data, drawings, and 3D models) in the EBM-Papst online-portal, and print or download them as required. Of course, the ECI 63.xx K5 preferred types, both as solo and gear motors, will be included in the online-portal and will be available for dispatch within 48 hours from receipt of order.

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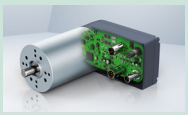
CAN Newsletter Online: Drives

The CAN Newsletter Online reports briefly about products and services.



SPS IPC Drives 2017
CANopen drive features 180 W to 370 W
EBM-Papst (Germany) presents its ECI 63.xx K5 drive system based on a brushless DC motor.
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Heater and valve
System solutions for gas condensing
EBM-Papst has presented its products and system solutions for gas-air ratio assembly at the ISH trade fair. Both a gas-air system and a gas valve come with a CAN port.
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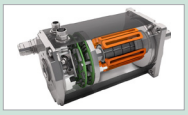

BLDC motor drive
Permanent output power of 1100 W
With the BG 95 dPro CANopen, Dunkermotoren has launched a drive based on a brushless DC motor (BLDC). It has an output power of over 1 kW.
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Stepper motor
Configurable via USB or Bluetooth
Camozzi (Italy) has introduced the DRCS series of CANopen drives. The product can be configured wireless and by means of USB.
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Nema-17 stepper motor
Optionally with CANopen interface
JVL Industri Elektronik (Denmark) has released the Servostep integrated stepper motor family (MIS171 to MIS176). They provide an embedded multi-turn encoder.
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