

Baumüller is setting standards with b maXX, its newest generation of drives. This series of converters and controllers was developed to meet current and future automation technology requirements worldwide.

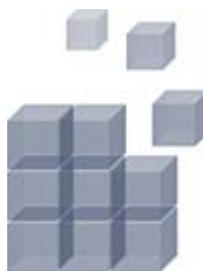


b maXX has up to 11 drawers for plug-in modules and can therefore be individually adapted for special automation tasks. Special plug-in modules interface b maXX, including interface adaptors for most standard bus systems. The plug-in b maXX-drivePLC module provides integrated intelligent control.

b maXX serves as a basis for both simple and complex automation solutions.

The requirements placed on machines and systems center on the ability to cope with future needs, flexible expansion capacity and simple adaptation with modified production processes.

With b maXX, Baumüller provides the drive and automation solution that meets the following requirements:



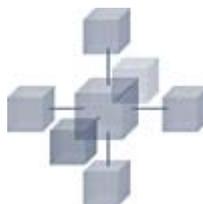
#### **Modular**

b maXX can be adapted in line with the specific requirements of a given application. The modular design guarantees that the drive system can be expanded adequately. Plug-in modules equip the controller, for example, with control functions or additional field bus interfaces. This ensures that the user can benefit from cost-effective configuration since only the capabilities and computing power required for a specific job need to be purchased.



#### **Scalable**

The drive capabilities are expandable to meet the demands and requirements that are placed on a machine or system. The performance capability of b maXX extends from the simple to the highly sophisticated automation application. Functionality and computing power are selected relative to the application on the basis of a consistent hardware and software platform.



#### **Open**

b maXX offers access to automation bus systems. The field busses EtherCAT, CANopen, CANsync, PROFIBUS-DP and Sercos are fully supported. An OPC server is provided for the interfacing of visualization systems. Remote access to process variables within the drive PLC is also possible without additional programming.

This is accomplished through the use of the OPC server and Ethernet TCP/IP connection available along with the b maXX-drivePLC. The b maXX-drivePLC module makes the controller intelligent and hence perfectly suitable for all special automation requirements. Thanks to the standardized programming

language IEC 61131, control programs and technology functions can also easily be created by the user.

### User benefits

The b maXX guarantees user-friendly operation, simple commissioning and maintenance as well as optimized configuration with maximum flexibility for integration into a wide variety of machine concepts. This qualifies it as a highly cost-effective and technically optimal solution. Engineering activities are reduced to a minimum. The stocking and storage of replacement parts is optimized due to the pluggable modularity.



### b maXX 4400 - modular servo controller - flexible and expandable

The b maXX 4400 is equally suitable for simple speed control applications or highly synchronous, multi-axis applications as it can easily be equipped with:



- analog I/Os
- digital I/Os
- encoder emulation (incremental / SSI)
- parameter storage module
- encoder evaluation (for closed loop applications)
- field bus interfaces
- integrated PLC: b maXX-drivePLC

The hardware can therefore be adapted in line with the exact requirements of your automation solution.

#### Drive controller

b maXX 4400 uses the principle of vector control for maximum dynamic response. Position control, speed control and current control are integrated and have a cycle time of 125  $\mu$ s. As a result, the motor is powered in a fast and precise manner. Clock speed and production output can be increased effectively. The operating modes jogging (teaching), referencing and synchronous operation with electronic gears are also supported.

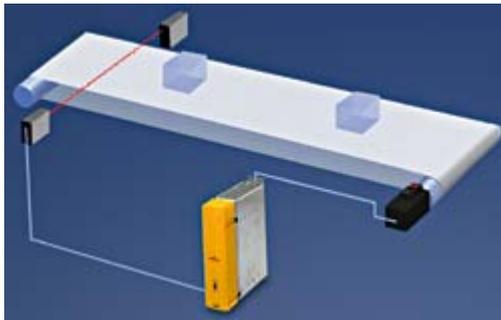
All the drive parameters can be permanently saved in a maximum of 8 data records. They can also be switched over and defined online. The data records are switched over via the digital I/Os, the field bus interface or the b maXX-drivePLC. As a result, b maXX can quickly and easily be adapted in line with variations in the production process. This significantly reduces retrofitting times and enhances the flexibility of the production process.

### **Integrated positioning control**

Integrated positioning control paves the way for relative or absolute positioning. Positioning can be trapezoidal with acceleration and brake ramp or in the form of an “S” curve. Jolt-free motion sequences extend the life of the mechanical components and enhance the availability of the machine. The amount of maintenance required is also reduced.

16 positioning profiles can be stored. These can be switched over online via the digital I/Os or the field bus interface. Hence, the user does not require a PLC for simple motion sequences. More demanding motion control with complex motion sequences and logic operations are implemented by the b maXX-drivePLC.

This relieves the burden on the machine’s control unit or, if required, a smaller control unit can be used and the highly dynamic motion sequences can be executed by the b maXX-drivePLC. Elaborate bus systems from the control unit to each of the drives are no longer necessary as the b maXX-drivePLC is already located in the drive where it directly executes the high-performance tasks. Depending on the application, the b maXX-drivePLC can control a single machine module or the entire machine.



Standard application

### **Fields of application**

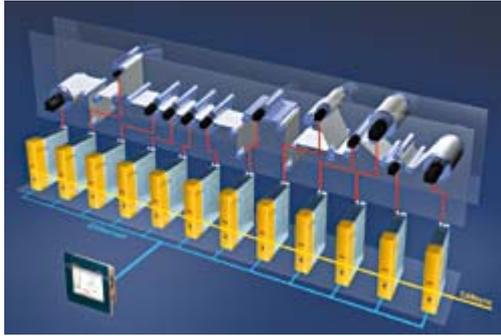
b maXX 4400 was designed and developed for a wide range of applications including very simple applications with open loop vector control for the encoderless control of standard motors. For standard servo applications with closed loop vector control b maXX 4400 is typically equipped with:

- encoder feedback such as resolver, SinCos or incremental
- digital I/Os for recording control signals

This configuration meets the requirements for simple positioning and drive tasks in the following fields: conveyor belts, material handling systems, cutting equipment, punches, presses and many more.

### **For complex automation tasks b maXX 4400 is typically equipped with:**

- encoder feedback such as SinCos or incremental
- asynchronous field bus interfaces such as CANopen or Profibus DP
- synchronous field bus interfaces such as CANsync or Sercos, CANopen with Sync-Telegram
- EtherCAT
- Ethernet TCP/IP: the data networks for diagnosis, visualization, teleservice, engineering
- integrated PLC: b maXX-drivePLC for complex control / technology tasks
- digital I/Os for process interfacing
- analog I/Os for measured data acquisition
- encoder emulation (incremental / SSI)



Complex application - e.g. modular label printing machine

**Consequently, b maXX 4400 is suitable for complete automation solutions:**

- newspaper, form or label printing
- plastics processing
- textile manufacture and processing
- packaging and food processing
- robotics and handling
- machine tools
- paper processing
- metal and wire processing
- wood working and many more