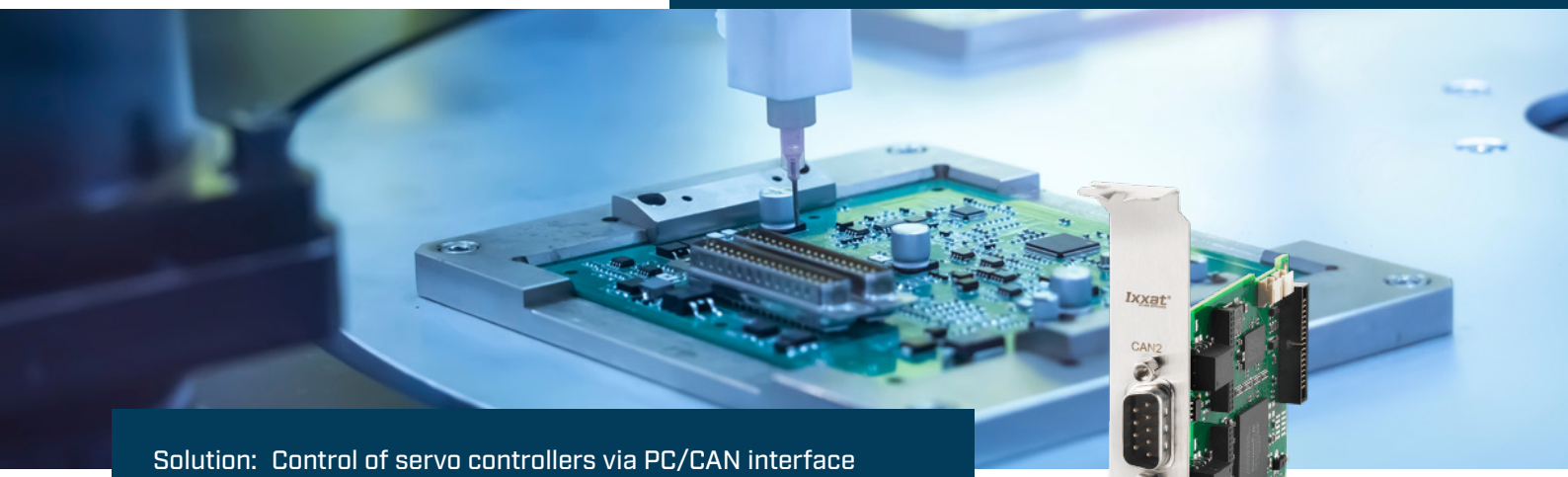
Ixxat® BY HMS NETWORKS

Case Study

Servo controller communication via CANopen protocol



Solution: Control of servo controllers via PC/CAN interface CAN-IB600/PCIe and CANopen protocol

Country: United States

Sector: Machine construction

Servo controller communication via CANopen master

Speed and precision for dispensers: PC interfaces and CAN-IB series allow for external precision control

Background

Precision and speed are crucial in innovative assembly lines in electronics production. An American mechanical engineering company fully relies on the high reliability and flexibility of Ixxat's integrated PC interfaces CAN-IB600/PCIe to control the dispenser units using an external PC. The interplay of the dispenser unit, stepper motors, servo controller, a higher-level IPC with connected software for controlling an X/Y coordinate system had to be solved here. A communication interface based on CANopen was sought for this solution.

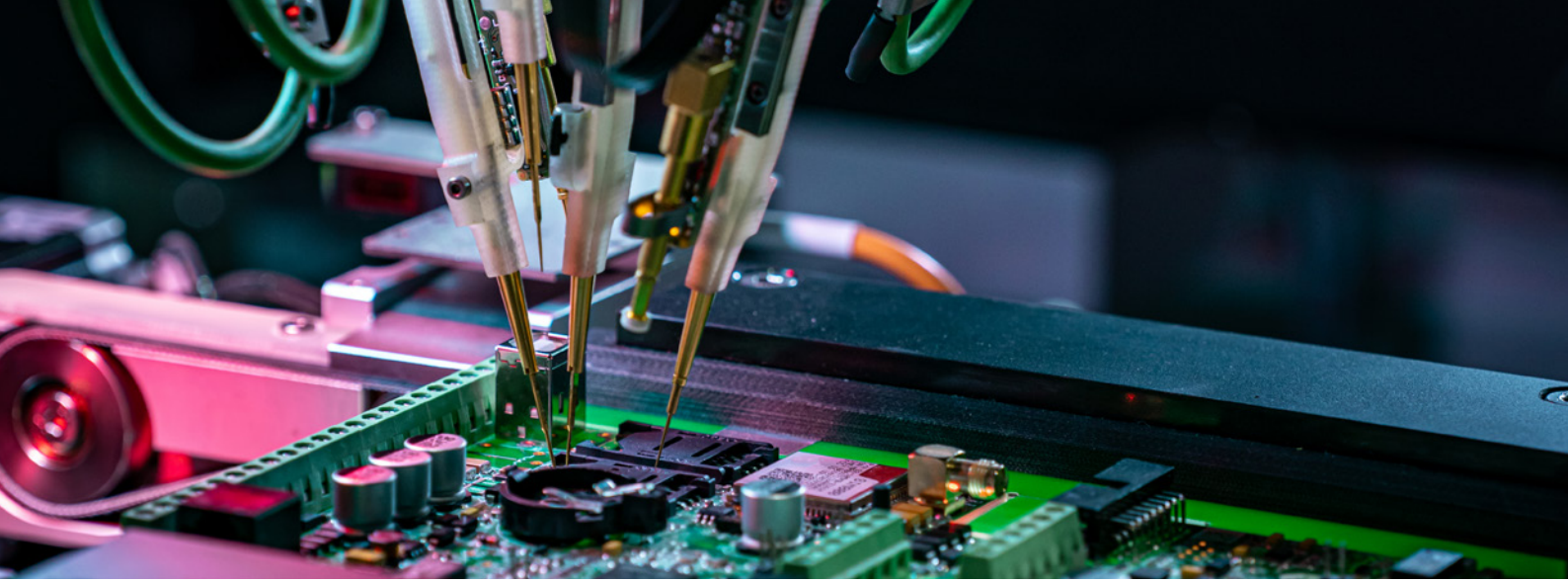
Precision & compatibility: PC control requires optimization

The electronics production machines for precisely applying adhesives previously used a custom PCI card to control the dispenser units externally. One main problem was reliably and efficiently controlling the servo controller, which works as a CANopen slave. The servo controller is responsible for controlling stepper motors here, which are meant to move the dispenser unit precisely and quickly.

However, errors repeatedly occurred, the communication between the motors, the servo controller, and the controller PC was not reliable and not accurate enough. Moreover, there were repeatedly integration problems due to the different processors and driver versions, which disrupted production and caused costly errors.

CUSTOMER BENEFITS

- Reliable and stable communication: Fault-free control of the servo controllers and linear drives via CANopen
- Improved production performance: Higher speed and accuracy in the dispenser control
- High level of compatibility: Support of different processor and driver versions
- Efficient support: Quick and flexible solutions to problems thanks to HMS Networks



Integrated interfaces as CANopen master: CAN-IB600/PCIe

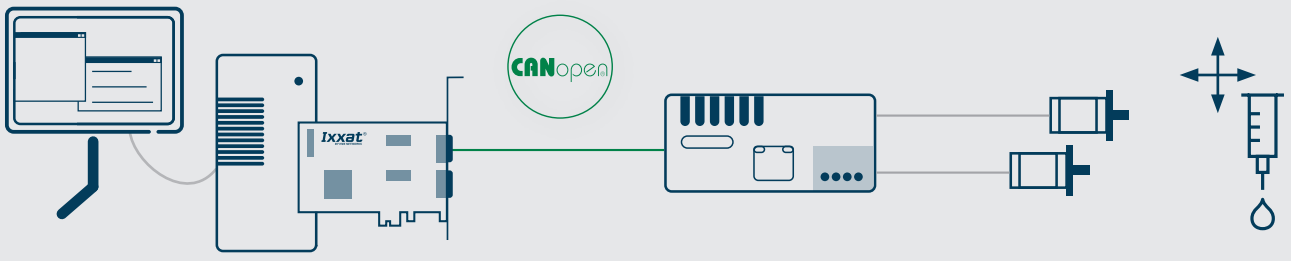
The CAN-IB600/PCIe interface card from HMS Networks was implemented as a central communication interface between the external control software and the servo controller in the IPC. The compact card serves as a CANopen master here and controls the servo controllers, which operate the linear drives and therefore the movement of the dispenser unit.

The integration of this robust and flexible interface made it possible to solve the communication problems. Using a Windows 10 computer with specific driver and processor combinations ensured that the controller works flawlessly and stably.

Maximum freedom of integration: The CAN-IB series offers flexibility

The CAN-IB card is characterized by its reliability and flexibility. The card has two switchable CAN/CAN-FD channels for quick data transmission and supports simple integration into existing systems. At the same time, several cards can be integrated into a PC in order to increase capacity. Its high level of compatibility with different drivers and processors was a decisive factor for its successful use.

As a PCI Express, the card offers high functionality in a compact format, which is perfect for powerful embedded systems. The modular card concept also allows for simple extensions for customer-specific interfaces through expansion cards and piggyback modules. The card supports expansion cards for additional CAN low-speed or LIN channels, which can be switched via software. All CAN-IB series cards are galvanically isolated in order to protect them against overvoltage and protect the network from electrical damage. The VCI driver packages support several fieldbuses and offer a comprehensive solution for various connectivity requirements.



Control computer with control application and a CAN-IB600/PCIe PC/CAN card for the CANopen master connection

Stepper motor control

Stepper motors for multi-dimensional movement of the dosing unit