IXXAT®

SOLUTION SHEET: CAN IN MEDICAL APPLICATIONS

IXXAT PC/CAN interfaces enable easy connection of medical devices from different manufacturers with a common control unit.

The use of a standardized bus system such as CANopen saves development costs, enables universal and scalable use of components and also considerably reduces the number of cables.

Benefits and advantages
of the IXXAT PC/CAN interfaces

- ✓ Support for all common PC interface form factors

- ✓ Common driver for easy change of interfaces

- ✓ Complete solutions for hardware and software from one source

- ✓ Powerful drivers for Windows, Linux, INtime, QNX, RTX and VxWorks

- ✓ High quality standards for development and production

- ✓ Long-term availability

Insights!

Connecting medical devices from different manufacturers to a common control unit.

The history of CAN and CANopen in medical technology started many years ago. In 1992 Philips Medical Systems developed a software protocol for use in its patient tables and x-ray systems. This first approach served as the basis for the so called CAL protocol, which evolved into today's CANopen protocol. CANopen is today a well-established and secure communication standard, which is used for many medical devices.

The background

Modern medical devices consist of a multitude of modules, which are connected to one another. By using a standardized bus system such as CANopen, individual system components – such as X-ray generators, patient tables or injectors – can be independently developed and modularly connected. This saves development costs, enables universal and scalable use of the components in a wide range of systems and also considerably reduces the number of cables.

A decisive advantage of CANopen as communication protocol is the availability of profiles for a large number of medical devices. As a result of which, interoperability of the components can be easily ensured for different manufacturers. Furthermore, the CAN and CANopen technology has already been approved by TÜV Deutschland and the FDA in the USA for use in medical systems.

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The solution

To enable a computer to control medical tasks, the computer must be able to communicate with the CAN/CANopen modules in use. The PC/CAN interfaces from HMS meet the electrical requirements according to IEC60601-1 and enable the connection of PC-based applications to CAN-based networks. In addition, HMS offers several CANopen driver packages for Windows. For example, by using the IXXAT CAN cards together with the IXXAT CANopen Manager API, medical devices can be controlled via a PC. Also, medical data can be imported for further evaluation

The IXXAT CANopen Manager API also supports the CiA 425 application profile, which allows easy, automated integration of components into complete systems.
The CiA 425 application profile allows easy connection of injectors for contrast media to control computers for CT systems. The control computer with the IXXAT CANopen Manager API detects the connected devices and their position in the network, and can automatically configure and control the entire system. In this context, it is particularly interesting that the CT system is frequently supplemented with components – e.g. Injectors – from third parties (3rd party vendors) without impairing the reliable functioning of the overall system

There are many other applications. Various well-known providers in the field of medical technology and laboratory automation rely on the proven quality of CAN/CANopen products from HMS:

■ Dialysis machines
Pumps in dialysis machines are controlled by means of a PC equipped with CAN interfaces.

■ Laboratory automation
Communication in and between conveyor belts, robots, centrifuges, pipetting systems, etc. is in many cases implemented with CAN and CANopen.

■ Mammography
IXXAT CAN interfaces or IXXAT control PCs with IXXAT CANopen software are also used in automatic mammography devices.

■ Eye surgery
IXXAT interface cards and software are used in market-leading laser- and ultrasonic devices, which are especially used during cataract removal.

■ Automated surgery
Not only individual machines and components in medical technology are networked, but entire operating rooms – from the operating table to the lighting control to the robotic assistance for the surgeon – rely on the experience and quality of IXXAT products from HMS.
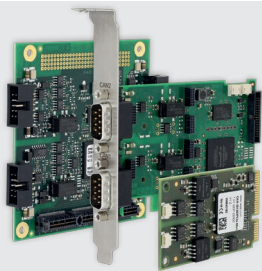
Learn more on www.ixxat.com

Under the IXXAT brand, HMS Industrial Networks offers communication solutions for machines, safety and automotive. This includes standardized software and hardware as well as customized OEM solutions. With a long track record within CAN-related connectivity, IXXAT solutions enable communication inside cars, medical equipment, industrial automation devices etc. The IXXAT brand also includes safety solutions for industrial communication.

HMS

IXXAT®   *Communication solutions for machines, safety and automotive*   *www.ixxat.com*