

Solution: Multi-network connection via Ixxat INpact
Country: Sweden
Company: Yaskawa Nordic AB
Summary: Robotics specialist Yaskawa is using the Ixxat INpact from HMS to connect robots with higher-level systems.



The effects

- Support of different fieldbus standards with one interface solution
- Common driver API minimizes development effort and costs



"With just one card, we are now able to provide our customers with access to several different fieldbus standards!"

Mats Martinsson
R&D Department
YASKAWA Nordic AB

Interconnection of robots with customer higher-level systems

Yaskawa offers industry-leading, high-speed industrial robots for various fields of application. For integration into customer environments, different fieldbus networks have to be supported – this is the point where the Ixxat INpact from HMS comes into action.

The challenge

Yaskawa's robots are used in various industries and countries. Depending on region and application, customers use different fieldbus standards in their plants, forcing Yaskawa to support them all to enable seamless interconnection between the robot/controller and the customer's higher-level system.

For a new controller generation with PCIe slots, Yaskawa was looking for a board enabling easy implementation of a slave fieldbus interface for many different standards. A common API and real-time drivers should allow fast implementation into the controller and enable switching of the fieldbus standard without the need for time and money consuming adaptation of the application.



Ixxat INpact is available in three form factors: PCIe, PCIe Mini and M.2 card – enabling implementation in industrial PCs, desktop PCs or in mobile devices.

The solution

Due to many years of cooperation in other areas, Yaskawa already knew the Ixxat solutions from HMS. At that time the Ixxat INpact was a quite new product in the HMS portfolio and Yaskawa took a closer look to see whether the board would fit into the controller application.

Ixxat INpact is based on a common hardware platform that can be used in different fieldbus environments by means of a software update. HMS supports here the industrial Ethernet standards EtherCAT, PROFINET, EtherNet/IP, Modbus-TCP and Powerlink. The card is also available with the same software API for PROFIBUS and for PROFINET with a POF interface in accordance with the AIDA standard.

Driver adaptation

Ixxat INpact comes with drivers and programming APIs for Windows, Linux and INtime. Since Yaskawa was using the proprietary VxWorks real-time operating system from Wind River on their systems, an adaptation of the existing drivers was required.

HMS provided the open driver sources to Yaskawa and supported them during the VxWorks portation. The engineers from Yaskawa were able to make this portation within a short time and implemented the Ixxat INpact successfully into their controller. By implementing one card, Yaskawa is now able to support different Industrial Ethernet and Fieldbus standards.

Due to the common API, the software application running on the controller is able to work with all network standards. A time-consuming adaptation to the different standards is not required.

The new controllers, offering fieldbus interfaces for many different standards, are already successfully released and available on the market since 2018.

Learn more on www.ixxat.com

Under the Ixxat brand, HMS Industrial Networks offers communication solutions for machines, safety as well as energy and automotive applications. This includes standardized software and hardware as well as customized OEM solutions. Ixxat solutions enable CAN, CAN FD and Industrial Ethernet based communication inside cars, medical equipment, industrial automation devices etc. The Ixxat brand also includes safety solutions for industrial communication as well as gateways for smart grid energy systems.