Ixxat INpact – Multi-protocol PCIe interfaces for industrial Ethernet and fieldbus communication
Ixxat INpact

Easy PC connectivity to any industrial network

Until now, it has been complicated to develop PC-based applications for several industrial Ethernet or fieldbus standards since different interface cards and application programming interfaces had to be used for each protocol.

Ixxat INpact simplifies the implementation and reduces your development costs significantly thanks to a protocol-independent solution that can be used in a wide range of applications.

Suitable for gateway, HMI and data acquisition applications, INpact allows you to connect your industrial PC or embedded system to many different industrial Ethernet and fieldbus networks. It combines proven Anybus technology with years of Ixxat know-how in the area of PC interface connectivity.

Multi-protocol technology

Ixxat INpact includes the Anybus CompactCom technology with the Anybus NP40 network processor – used within millions of industrial devices globally.

The FPGA-based Anybus NP40 network processor provides all functions required to handle the communication between the different industrial Ethernet and fieldbus networks and the PC-based application.

Ixxat INpact enables easy connection of PC-based or embedded slave applications to EtherNet/IP, EtherCAT, Powerlink, Modbus TCP, PROFINET IRT, PROFINET IRT Fiber Optic and PROFIBUS.

Anybus NP40 provides high performance for real-time applications, making Ixxat INpact the ideal choice for demanding industrial applications.

Supported protocols and formats

<table>
<thead>
<tr>
<th>Protocol / Interface Format</th>
<th>EtherNet/IP</th>
<th>EtherCAT</th>
<th>Powerlink</th>
<th>Modbus</th>
<th>Profinet IRT</th>
<th>Profinet IRT Fiber Optic</th>
<th>Profibus</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interface name</td>
<td>INpact EIP</td>
<td>INpact ECT</td>
<td>INpact EPL</td>
<td>INpact EIT</td>
<td>INpact PIR</td>
<td>INpact PIRFO</td>
<td>INpact DPV1</td>
</tr>
<tr>
<td>PCIe (standard slot-brackets)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>PCIe (low-profile slot-brackets)</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>PCIe Mini</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>M.2</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

Future ready!

Benefit from our continuous product maintenance and new developments and implement new standards and future technologies on the fly.
Develop independently of the used protocol

Ixxat INpact comes with a comprehensive driver package for Windows and Linux with a C programming interface, enabling easy and rapid development of customer-specific applications – independent of the used board version and protocol.

Thanks to the uniform application programming interface, it is possible to switch quickly between protocols without extensive programming, leading to increased flexibility and a reduction in terms of development costs.

Drivers for real time operating systems such as RTX, Intime, VxWorks and QNX are supported upon request.

Switch between the protocols on the fly

"Common Ethernet (CE)" and dedicated versions

The industrial Ethernet variants of the Ixxat INpact include two complementary approaches to industrial Ethernet connectivity:
- Dedicated versions for each Ethernet standard with pre-installed network protocols.
- The very flexible Common Ethernet solution which allows the desired industrial Ethernet protocol to be downloaded into a standardized Ethernet hardware. This enables easy and cost-efficient switching between all available industrial Ethernet protocols, minimizing the need for keeping stock of different product versions.

Uniform driver interface for all INpact cards

For industrial PCs and mobile devices

The INpact offering is available in three versions with different interfaces:
- PCIe, including standard or low-profile slot-brackets.
- PCIe Mini and M.2, for devices with limited available space and mobile devices.

Panel PC meets Industrial Ethernet!

Ixxat INpact enables Industrial Ethernet access for AAEON’s robust and stylish panel PC series.

The Ixxat INpact allows us to overcome one of the key challenges of the Industrial IoT: The connection of IT-level devices – where AAEON has its core competences – to the OT level, namely the different fieldbuses. The Ixxat INpact fits perfectly into our PC-systems, and provides the perfect combination of state-of-the-art technology and quality. By integrating the Ixxat INpact CE slave into our systems, we can offer our customers the best way to connect their application to the cloud and to multiple industrial networks.

Implementation

– easy and flexible

Designed to be used in many fields

- Connection of devices/subsystems as a slave to higher level networks
- Process data visualization e.g. within control stations or machines
- Data acquisition within test benches or test systems
- Highly flexible gateway
Adaptable

- to your specific requirements

Flexible network connection

In addition to the INpact PCIe versions with integrated bus interfaces, the PCIe Mini and M.2 variants are based on a modular concept consisting of the INxat INpact interface, a bus coupling unit and a cable for connecting the two components.

All network interfaces are galvanically isolated, which provides efficient protection against EMC issues and overvoltage.

Customized solutions

If you have specific requirements and need an OEM version or customized solution, HMS can offer a variety of different development services to meet your needs.

- Brand-labelling
- Hardware and software modification of standard products
- Completely custom designed products based on our core technologies

### Technical data

<table>
<thead>
<tr>
<th>Format</th>
<th>PCIe Standard and Low Profile</th>
<th>M.2</th>
<th>PCIe Mini</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supported protocols</td>
<td>PCIe, INpact, EtherCAT, Powerlink</td>
<td>INpact, EtherCAT, Powerlink</td>
<td>INpact, EtherCAT, Powerlink</td>
</tr>
<tr>
<td>Fieldbus interface</td>
<td>PCI Express single lane port (x1)</td>
<td>PCI Express single lane port (x1)</td>
<td>PCI Express single lane port (x1)</td>
</tr>
<tr>
<td>Network handling</td>
<td>Anbus N/PAD</td>
<td>Anbus N/PAD</td>
<td>Anbus N/PAD</td>
</tr>
<tr>
<td>Power supply</td>
<td>Via PCIe (3.3 V / 12 V DC)</td>
<td>Via PCIe (3.3 V)</td>
<td>Via PCIe (3.3 V)</td>
</tr>
<tr>
<td>Current consumption</td>
<td>Ty. 270 mA / 3.3 V DC, 120 mA / 12 V DC</td>
<td>Ty. 100 mA / 3.3 V DC, 120 mA / 12 V DC</td>
<td>Ty. 600 mA / 3.3 V DC, 120 mA / 12 V DC</td>
</tr>
<tr>
<td>Form factor</td>
<td>M.2</td>
<td>M.2</td>
<td>M.2</td>
</tr>
<tr>
<td>Galvanic isolation</td>
<td>1,500 Vrms</td>
<td>1,500 Vrms</td>
<td>1,500 Vrms</td>
</tr>
<tr>
<td>Dimensions</td>
<td>64 x 105 mm</td>
<td>(only M.2 interface with cable)</td>
<td>(only PCIe Mini interface with cable)</td>
</tr>
</tbody>
</table>

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### Protocol-specific functions

- Supports the Powerlink V2.0 profile, Version 1.2.0 (CN)
- Supports ring redundancy
- Up to 1490 bytes I/O data for each direction
- Up to 57343 ADIs
- Supports MODBUS over EtherCAT
- Supports PROFINET IRT over EtherCAT
- Supports MODBUS Device Server/Slave over Ethernet/IP
- Supports Media Redundancy Protocol
- Supports Generic and PROFINET specific diag. support
- Up to 1440 bytes I/O data for each direction incl. status bytes
- Up to 65536 ADIs
- Customizable identity inform.
- CIP Parameter Object support
- Extended CIP objects
- Unconnected CIP routing
- Profibus-DP V1 & V2
- Automatic baud-rate detection
- Generic and PROFIBUS specific diagnostic support
- User Parameterization Data
- Set Slave Address
- ADI access via DP-V1 read/write services
- Up to 488 bytes of I/O data (244 bytes in each direction)
- Device identity customization
Work with HMS.
The number one choice for industrial communication and IIoT.

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