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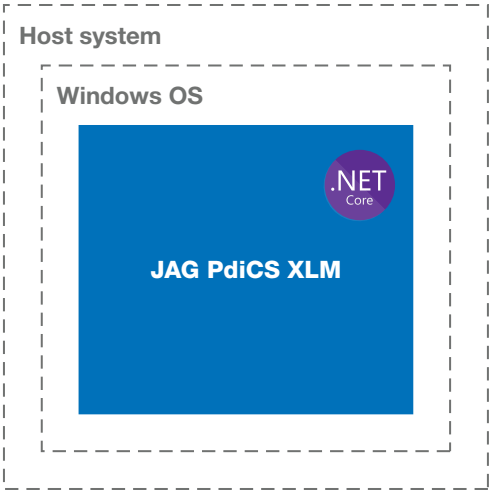
JAG PdiCS XLM

For highly automated manufacturing.

JAG PdiCS master modules have been the heart of JAG automation solutions since 1997. The JAG PdiCS XLM is the newest member of the family and comes with a major innovation. Unlike its predecessors, it does not require a dedicated hardware and firmware to run, but is a .NET Core based software application running on a Microsoft Windows host system. Depending on the use case, physical or virtual machines are used as host system.

The OPC UA and Modbus/TCP interfaces allow interacting with 3rd party products as they are well accepted global standards. The JAG PdiCS XLM can be both Client and Server. This allows for instance to integrate machines or package units that come with their own controller, or to deliver data to data management platforms like OSI PI, to alarm systems or any other software application providing an OPC UA or Modbus/TCP interface.



Features and benefits

The JAG PdiCS XLM offer the following features and benefits:

- » **Acts as JAG PdiCS master**
- » **.NET Core application running as a service**
- » **OPC UA Client and Server**
- » **Suitable for greenfield and brownfield installations**
- » **Allows replacing existing PdiCS master modules (typically XMM, XPM or XVM)**
- » **Approved industrial PCs as standard host system**

OPC UA

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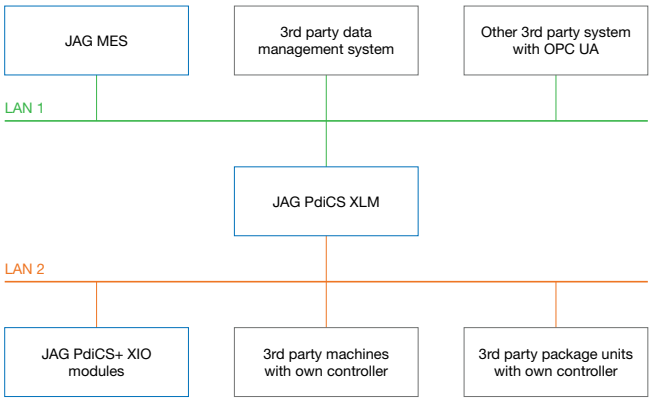
JAG PdiCS XLM use cases.

For greenfield and brownfield installations.

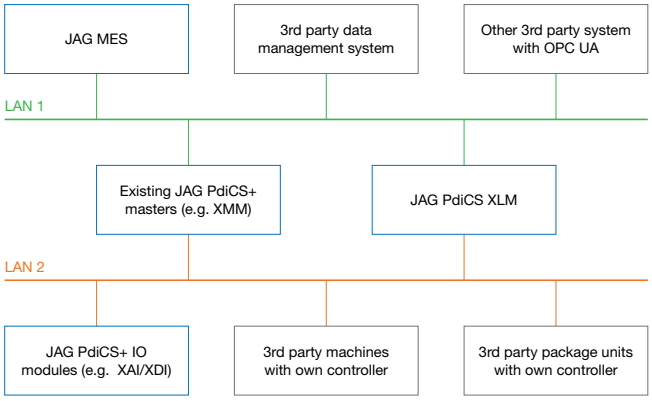


Greenfield

In new installations and machines, JAG PdiCS XLM are used instead of the traditional, hardware-based master modules.

They communicate with JAG MES, JAG PdiCS+ XIO modules and a wide range of 3rd party products like machines or package units with own controller, data management sytems or other software applications.

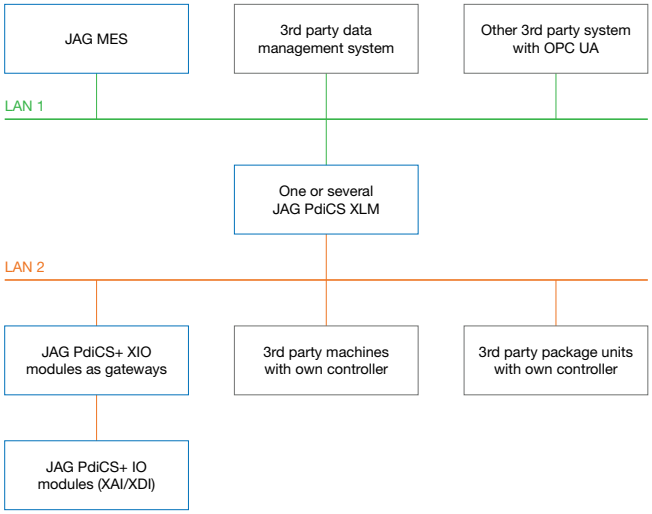
If supported by the 3rd party system, this communication takes place via OPC UA to streamline the integration.



Brownfield (as an extension)

JAG PdiCS XLM are designed to coexist and be compatible with traditional, hardware-based master modules.

This allows extending existing installations and machines, typically to benefit from new features like the OPC UA in order to interface with additional 3rd party systems.



Brownfield (as a replacement)

In migration projects, JAG PdiCS XLM replace traditional, hardware-based modules.

The motivation for such a replacement can be a product phase-out or the need for new features.

Existing installations and machines often contain legacy I/O modules without Ethernet interface. Thanks to the use of JAG PdiCS+ XIO modules as gateways, ARCNET busses with such I/O modules can be connected to the new JAG PdiCS XLM masters.

This allows replacing only the masters in a first step and postponing the replacement of the I/O modules.

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Standard host systems for JAG PdiCS XLM.

Approved industrial PCs for peace of mind.

The IT requirements for JAG PdiCS XLM are described in a separate document (ES-2022-02-1450). Depending on the use case, the use of virtual machines is allowed. That said, we recommend using industrial PCs (IPCs) as a host system, that have been tested and approved by JAG. This allows the JAG PdiCS XLM to run in a constant, well known and tested environment and thus to ensure reliability and peace of mind.

JAG IPC-S

The “small” IPC is a very compact, fanless unit foreseen to run a JAG PdiCS XLM and nothing else.

Typical technical data (subject to change with new variants)

Power supply	24 VDC. External dual supply or buffer units are available as an option
CPU	Intel Atom family, 4 cores
RAM	8 GB
Disk	SSD, 160 GB
Interfaces	2x Ethernet, 2x USB, 1x DisplayPort
Mounting	To be clamped on a DIN rail
Operating temperature	0 to +50 °C
Operating system	Windows 10 IoT Enterprise LTSC, 64 bit, EN

JAG IPC-L

The “large” IPC is significantly more powerful and foreseen to run JAG PdiCS XLM and other applications. In test systems it can as well be used to run several instances of JAG PdiCS XLM on the same IPC.

Typical technical data (subject to change with new variants)

Power supply	24 VDC. External dual supply or buffer units are available as an option
CPU	Intel i5 family, 6 cores
RAM	8 GB
Disk	SSD, 160 GB
Interfaces	4x Ethernet, 4x USB, 2x DisplayPort
Mounting	Monting plate with screw holes
Operating temperature	0 to +50 °C
Operating system	Windows 10 IoT Enterprise LTSC, 64 bit, EN

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Order information.

License concept and hardware components.

The software license concept for JAG PdiCS XLM considers four aspects:

- the size of the plant or machine
- the number of PdiCS-BUS networks
- the number of published OPC UA Server TAGs
- the High Availability option

Each PdiCS system based on JAG PdiCS XLM requires a separate license, even if multiple JAG PdiCS XLM are running on the same host system (which is allowed for test systems).

For installations with multiple PdiCS XLM systems the size and the numbers of PdiCS-BUS networks and OPC UA Server TAGs have to be evaluated for each system individually, depending on what is controlled by each of them.

When choosing the license, the size of the plant or machine is the most important aspect. If a large number of PdiCS-BUS networks or OPC UA Server TAGs are required, it is sometimes necessary to choose a larger license to cover all three aspects. If, for instance, 700 OPC UA Server TAGs are required, at least a 5 Units license has to be chosen.

Licenses with High Availability option can be used for both PdiCS XLM belonging to the same system.

The OPC UA Client feature is included in all licenses, only the TAGs published as OPC UA Server do matter from a licensing perspective.

The JAG PdiCS XLM licenses do not include any hardware. The host system, as well as potential JAG PdiCS+ XIO modules used as gateway to busses with legacy I/O modules, have to be considered separately.

When working with JAG PdiCS XLM, unplanned shutdowns of the host system must be avoided. When working with JAG IPCs there are two approaches to avoid them:

- if an uninterruptible 24 VDC power supply (UPS) is available: a dual 24 VDC supply can be implemented with an optional redundancy module
- if no UPS is available: an optional DC-UPS module with supercapacitors is requried to ensure a controlled shutdown of the IPC in the event of a power interruption

Order information (JAG PdiCS XLM licenses)

1 Unit, 1 PdiCS-BUS networks, no OPC UA Server TAGs	M022.300.001.000
2 Units, 2 PdiCS-BUS networks, 200 OPC UA Server TAGs	M022.300.002.000
5 Units, 2 PdiCS-BUS networks, 1000 OPC UA Server TAGs	M022.300.005.000
10 Units, 4 PdiCS-BUS networks, unlimited OPC UA Server TAGs	M022.300.010.000, with High Availability option M022.300.010.100
20 Units, 4 PdiCS-BUS networks, unlimited OPC UA Server TAGs	M022.300.020.000, with High Availability option M022.300.020.100
30 Units, 8 PdiCS-BUS networks, unlimited OPC UA Server TAGs	M022.300.030.000, with High Availability option M022.300.030.100

Order information (hardware)

JAG IPC-S.xx[1)]	M019.020.030.1xx
JAG IPC-L.xx[1)]	M019.020.030.0xx
Redundancy module for dual 24 VDC supply (up to 10 A)	M010.003.050.200
DC-UPS module with supercapacitors (up to 15 A, 6 kWs)	M010.003.050.210
JAG PdiCS+ XIO-A	M019.003.300.000
JAG PdiCS+ XIO-AM	M019.003.300.050
JAG PdiCS+ XIO-D	M019.003.300.100
JAG PdiCS+ XIO-DM	M019.003.300.150

1) New JAG IPC variants with new order numbers are introduced when required to keep pace with the technological progress.

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