



NIAGARA^{AX} JACE EQUIPMENT

Hardware Options



Workbench



INTERNET



Remote Supervisor

When recommending hardware for an upcoming job, you can select from an array of hardware platforms including an ordinary Windows PC or one of Tridium's proprietary Java Application Control Engines, better known as a JACE. Click any of the images below to learn more.

Ethernet, TCP/IP, BACnet, XML, HTTP





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JACE TYPE	PROCESSOR	PORTS	OPTIONS-UPGRADES	OPER SYSTEM	RAM-FLASH MEMORY
JACE-201 (DIN-rail mountable) (also used in Niagara Security Appliance)	Power PC 405EP (250MHz)	2 – Ethernet 1 – RS232 1 – RS485 ^A	128 mB RAM Optional comm. cards	QNX (with Java VM)	64 mB SDRAM 64 mB flash
JACE-403-AX (array of NDIO devices) (metal enclosure)	Motorola RISC (250 MHz)	1 – Ethernet 1 – RS232 1 – RS485 ^A 1 – LON	256 mB RAM / 128 mB flash Auto-dial/auto-answer 56K modem (uses RS-232 port when installed)	QNX (with Java VM)	128 mB RAM 32 mB flash
JACE-545-AX (metal enclosure)	Motorola RISC (250 MHz)	1 – Ethernet 1 – RS232 4 – RS485 ^A 1 – LON	256 mB RAM / 128 mB flash Auto-dial/auto-answer 56K modem (uses RS-232 port when installed)	QNX (with Java VM)	128 mB RAM 32 mB flash
JACE-601 (similar to JACE-201) (also used in Niagara Security Appliance)	Power PC 440 (524 MHz)	2 – Ethernet 1 – USB 1 – RS232 1 – RS485 ^A	256 mB DDR RAM 78 kbps LON adapter, RS-232 port adapter, Dual port RS-485 adapter Up to 4 I/O modules (16-port) and power module Optional comm. cards	QNX (with Java VM)	128 MB DDR RAM 128 mB flash
JACE-NXS (convection fin cooled) (embedded version of Win XP)	Intel Celeron (650 MHz)	2 – Ethernet 4 – USB 1 – RS232 1 – RS485 ^A 1 – LON	Web UI server option (R2) 40 GB hard drive UPS upgrade	Windows XP (with Java VM)	512 mB RAM 1 GB flash drive

A - RS-485 → to connect to open & proprietary protocol devices



NIAGARA^{AX} JACE EQUIPMENT

JACE TYPE	HARDWARE	CARD READERS	SUPERVISED INPUTS	RELAY OUTPUTS	DIGITAL INPUTS		
Niagara Security JACE	JACE-201	2	6	4	3		
	JACE-601	2	6	4	3		
	READER MODULE	2	4	2	2		
	I/O MODULE	—	8	8	2		
	HARDWARE	READER MODULES	I/O MODULES	TOTAL READERS	TOTAL I/O	PERSONNEL RECORDS	HISTORY RECORDS
	JACE-201	up to 7	up to 8	16	64 / 64	2,500	5,000
	JACE-601	up to 15	up to 15	32	120 / 120	10,000	50,000

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JACE TYPE	PROCESSOR	PORTS	OPTIONS-UPGRADES	OPER SYSTEM	RAM-FLASH MEMORY
JACE-201	Power PC 405EP (250MHz)	2 – Ethernet 1 – RS-232 1 – RS-485	128 mB RAM Optional comm. cards	QNX (with Java VM)	64 mB SDRAM 64 mB flash

Ideally suited for:

- Smaller facilities and remote sites
- Distributing control and monitoring throughout large facilities
- Supporting a wide range of field busses for connection to remote I/O and stand-alone controllers

Hardware Options: **JACE-201**



JACE-201

This inexpensive DIN-rail mountable JACE Controller is designed to be used in conjunction with one or more I/O modules.



Click for Data Sheet



Module 3: Niagara System Advantages, Topic 3.3: Flexibility



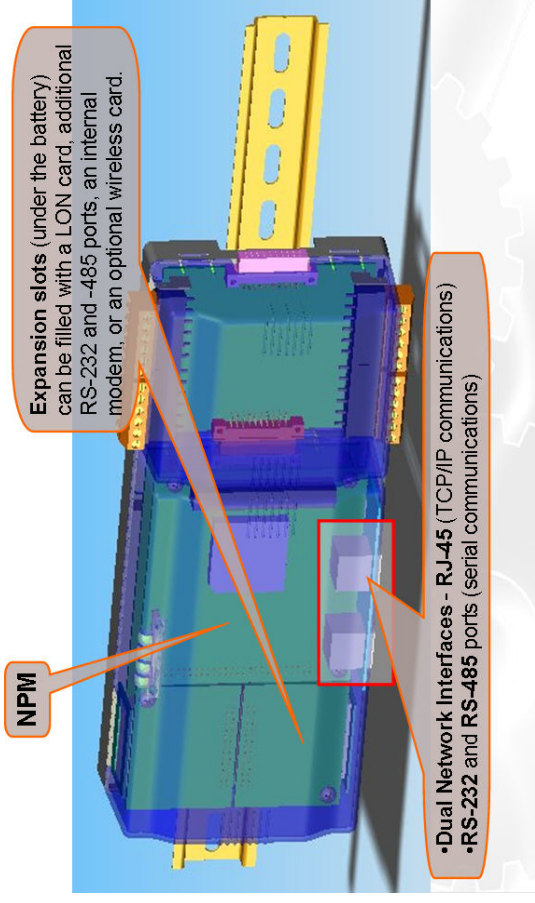
Module 3: Niagara System Advantages, Topic 3.3: Flexibility



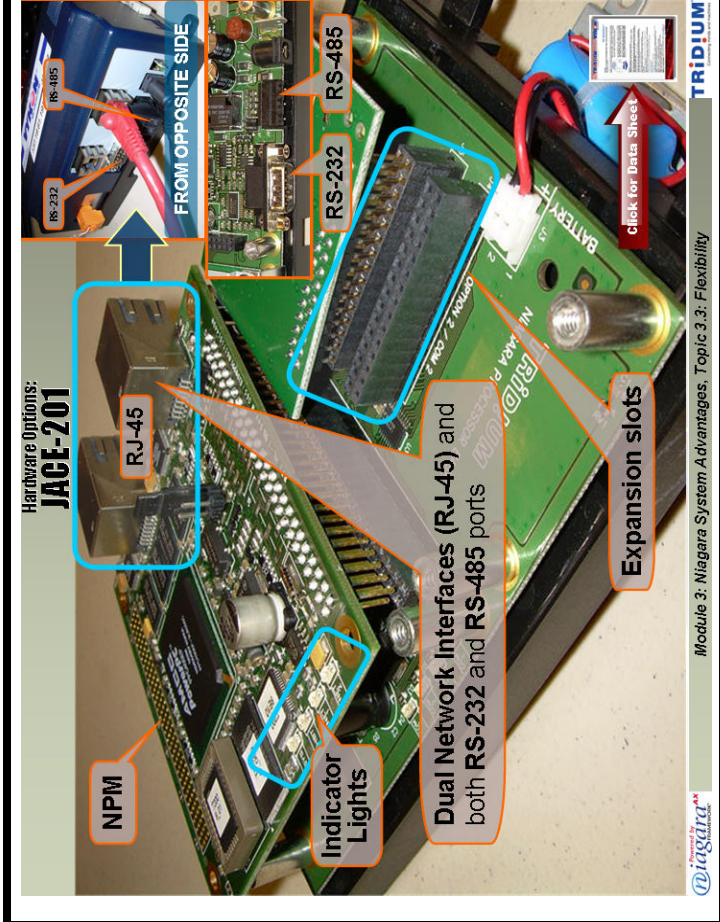
Hardware Options: **JACE-201**



JACE-201



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NIAGARA^{AX} JACE EQUIPMENT

JACE TYPE	PROCESSOR	PORTS	OPTIONS-UPGRADES	OPER SYSTEM	RAM-FLASH MEMORY
JACE-403-AX	Motorola RISC (250 MHz)	1 – Ethernet 1 – RS-232 1 – RS-485 1 – LON	Auto-dial/auto-answer 56K modem (uses RS-232 port when installed)	QNX (with Java VM)	128 mB RAM 32 mB flash

Ideally suited for:

- Light commercial applications
- Wall- or enclosure-mounting
- Monitoring pulse contacts from power/demand meters, analog sensors or transducers, or control energy-consuming devices

Hardware Options: **JACE-403-AX**



JACE-403-AX

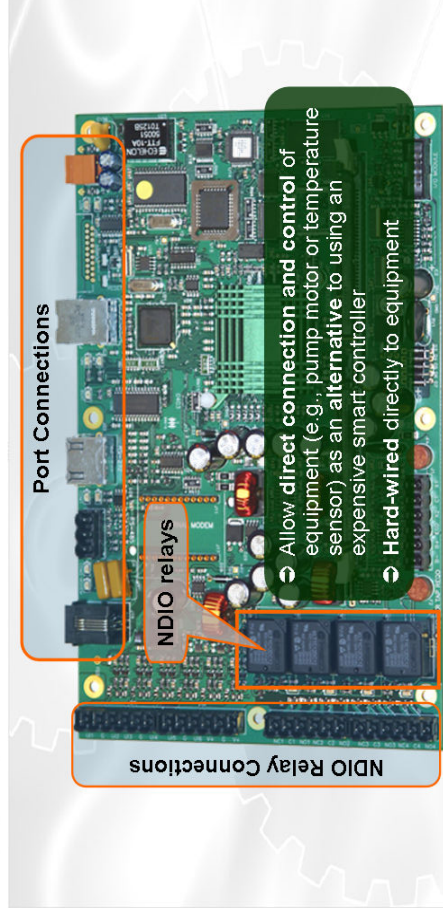
The JACE-403-AX is one of the true "workhorses" in the Tridium JACE controller line.

Hardware Options: **JACE-403-AX**



JACE-403-AX

Featuring an internal power supply and a battery backup, the JACE-403-AX has an array of **Niagara Direct Input/Output (NDIO)** relays physically mounted on the mother board.



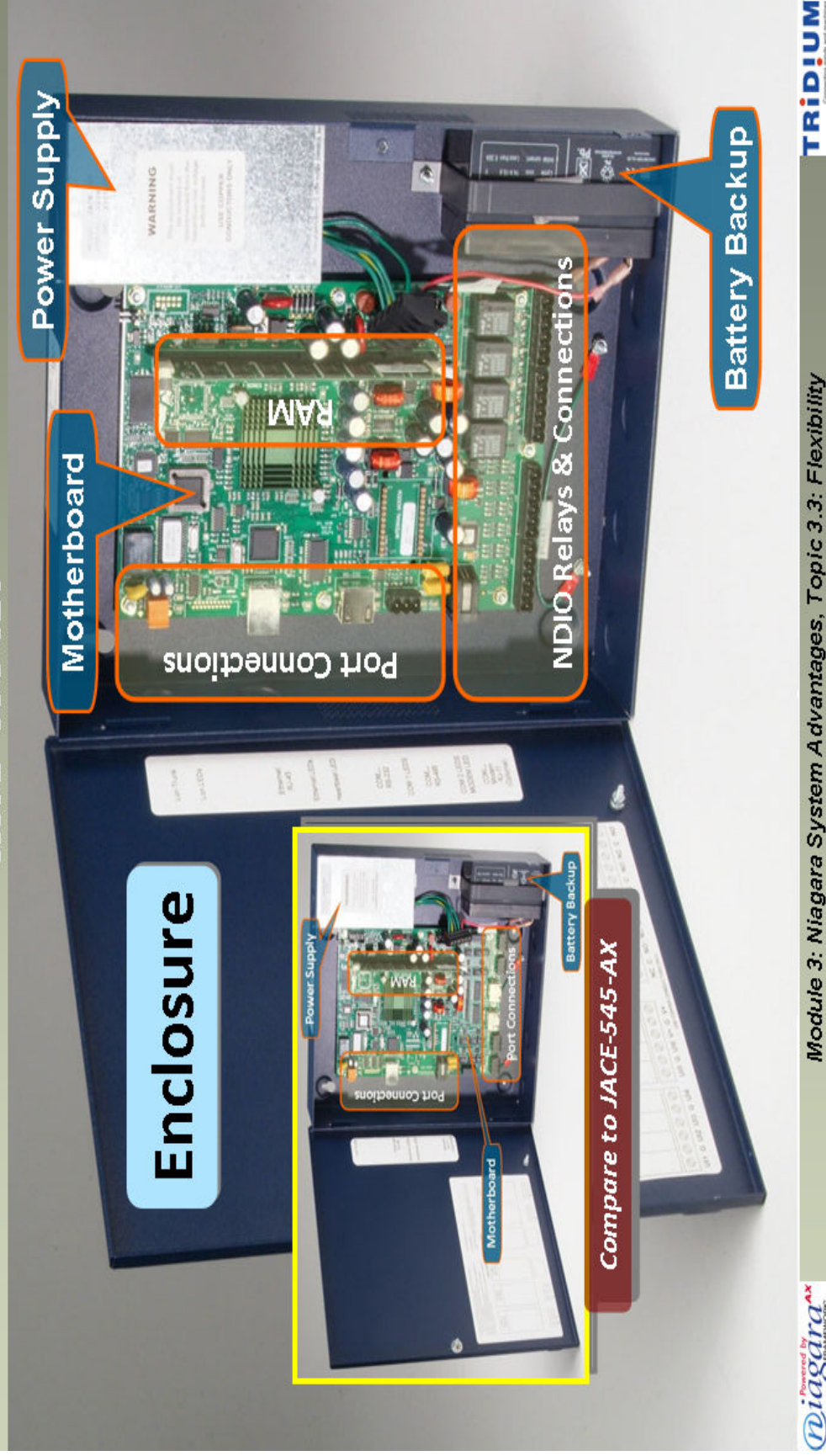


QUIK-REVIEW



NIAGARA^{AX} JACE EQUIPMENT

Hardware Options: JACE-403-AX





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JACE TYPE	PROCESSOR	PORTS	OPTIONS-UPGRADES	OPER SYSTEM	RAM-FLASH MEMORY
JACE-545-AX	Motorola RISC (250 MHz)	1 – Ethernet 1 – RS232 4 – RS-485 1 – LON	256 mB RAM / 128 mB flash Auto-dial/auto-answer 56K modem (uses RS-232 port when installed)	QNX (with Java VM)	128 mB RAM 32 mB flash

Ideally suited for:

- Commercial applications
- Users who require a compact controller that can be wall- or enclosure-mounted
- Integrating any combination of devices (with the appropriate optional drivers)

Hardware Options: **JACE-545-AX**

The JACE-545 comes equipped with an internal power supply and battery backup, and features two RS-232 ports with four RS-485 ports. Internal and external modem options exist, and either option will tie up an RS-232 port.

- ☒ **Physical:** Single board controller, metal enclosure
- ☒ **Processor:** 250 mHz Motorola RISC CPU
- ☒ **RAM:** 128 mB RAM – *expandable option*
- ☒ **Storage:** 32mB Serial Flash memory – *expandable option*
- ☒ **OS:** QNX with Java Virtual Machine, Niagara^{AX}
- ☒ **Power:** 120VAC
- ☒ **Port Connections:** LONWorks, RS232 (2), RS485 (4), Ethernet (1)
- ☒ **Battery backup**

[Click for Data Sheet](#)

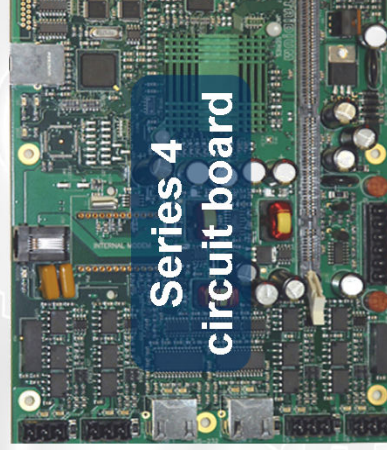
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Module 3: Niagara System Advantages, Topic 3.3: Flexibility

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Hardware Options: **JACE-545-AX**

Note that when you look up information for the JACE-545-AX in the Workbench, it will show “J404” as the model because it actually uses a **series 4 circuit board**.



Baja Version	Tridium 3.3.22	
System Home	/niagara	
Host	10.10.11.24	
Daemon HTTP Port	3011	
Host ID	Cnc-J404-0000-0A44-0988	
Model	J404	
Local Date	15-May-08	
Local Time	14:57 EST	
Local Time Zone	Janaka (-5)	
Operating System	qnx-jace-james-etfs12 (2.2.12)	
Niagara Runtime	rne-core-qnx-ppc (3.3.22)	
Architecture	ppc	
Module Contents	uHruntime	
Strip line nos.	true	
Java Virtual Machine	bm-j9-qnx-ppc (IBM Corporation 2.3.20071102)	
Number of CPUs	1	
Current CPU Usage	4%	
Overall CPU Usage	5%	
Filesystem		
Total	Free	Block Size
jffs0 28,672 KB	6,205 KB	1,024 bytes
Physical RAM	Total	Free
	131,072 KB	10,300 KB
Other Parts	james-etfs12 (1.0)	

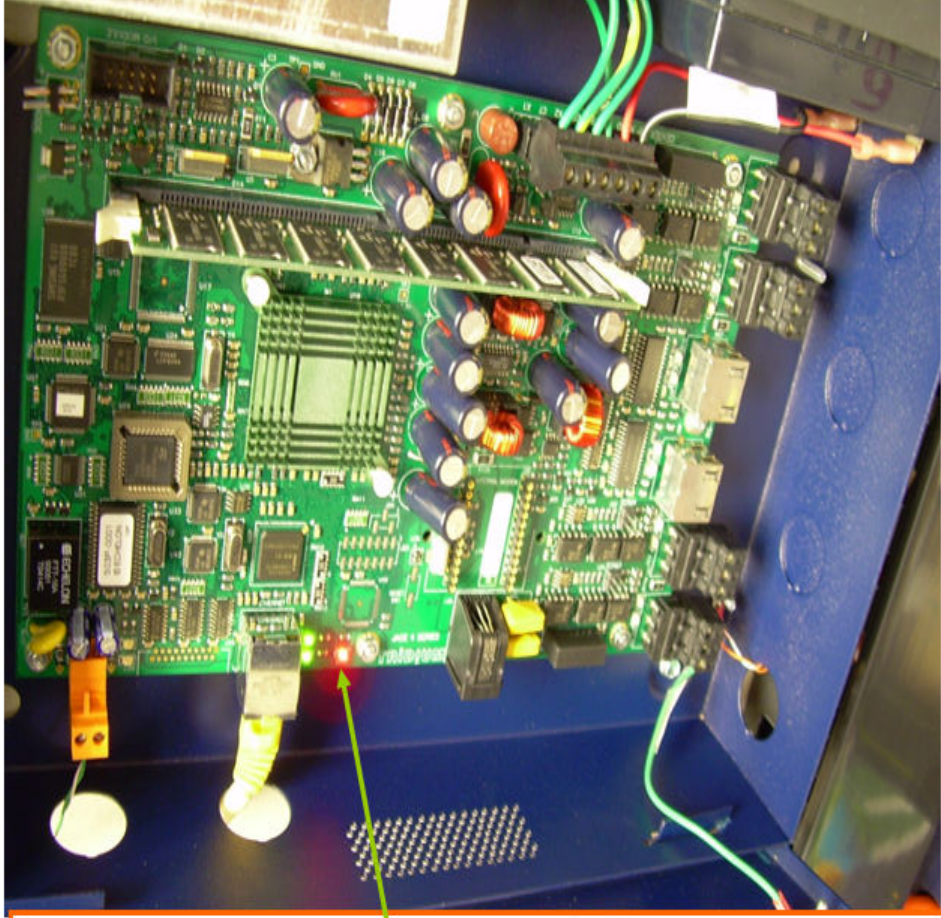
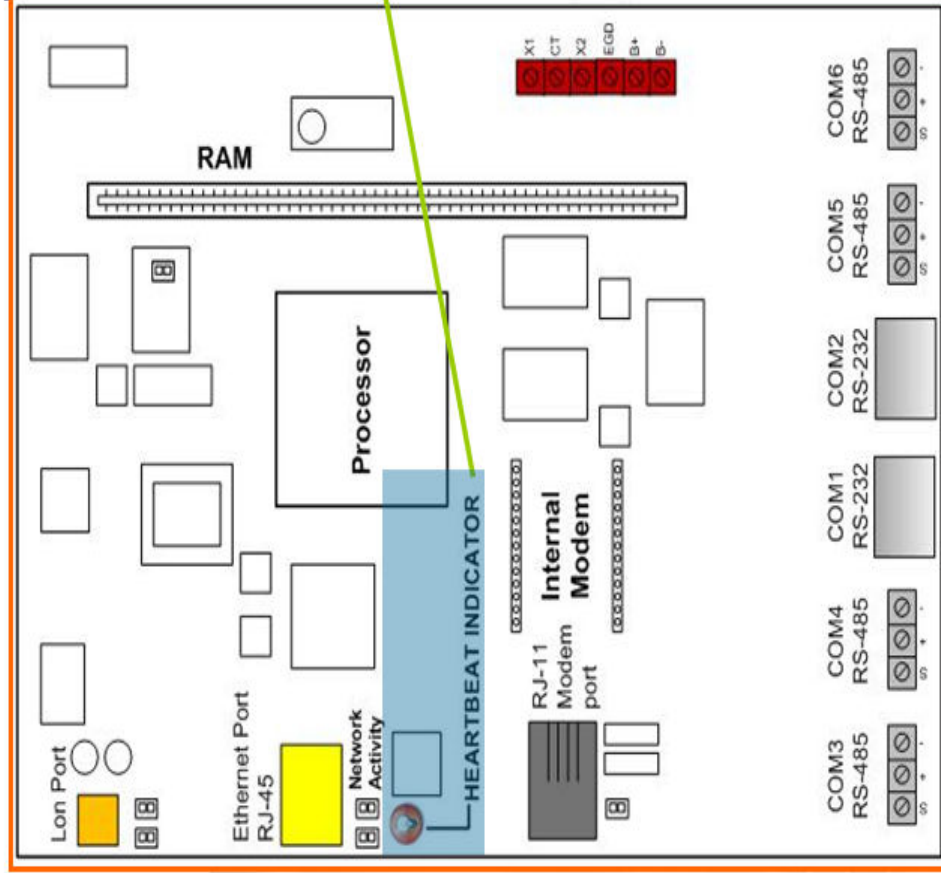
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Module 3: Niagara System Advantages, Topic 3.3: Flexibility

TRIDIUM

NIAGARA^{AX} JACE EQUIPMENT

Hardware Options: JACE-545-AX – Heartbeat



NIAGARA^{AX} JACE EQUIPMENT

JACE TYPE	PROCESSOR	PORTS	OPTIONS-UPGRADES	OPER SYSTEM	RAM-FLASH MEMORY
JACE-601	Power PC 440 (524 MHz)	2 – Ethernet 1 – USB 1 – RS-232 1 – RS-485	256 mB DDR RAM 78 kbps LON adapter, RS-232 port adapter, Dual port RS-485 adapter Up to 4 I/O modules (16-port) and power module Optional comm. cards	QNX (with Java VM)	128 mB DDR RAM 128 mB flash

Ideally suited for:

- Smaller facilities and remote sites
- Distributing control and monitoring throughout large facilities
- Supporting a wide range of field busses for connection to remote I/O and stand-alone controllers

Hardware Options: **JACE-601**



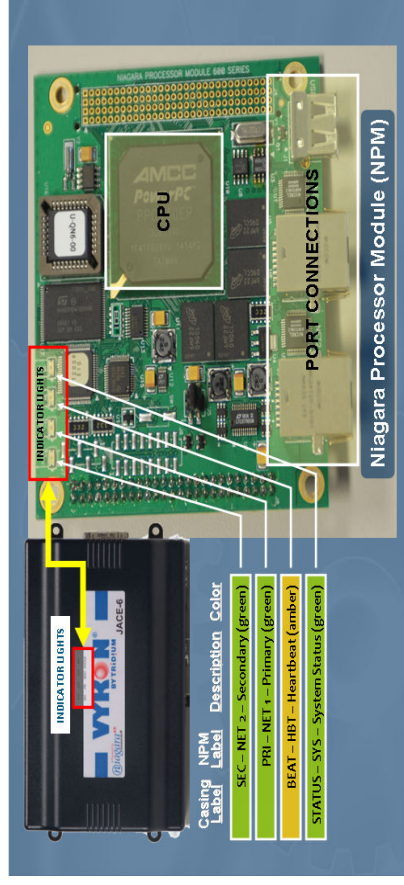
This DIN-rail mountable JACE Controller is designed to be used in conjunction with a Power Supply Module and one or more I/O modules.



Hardware Options: **JACE-601**



The JACE-601 also contains a **Niagara Processor Module (NPM)**.



NIAGARA^{AX} JACE EQUIPMENT

JACE TYPE	PROCESSOR	PORTS	OPTIONS-UPGRADES	OPER SYSTEM	RAM-FLASH MEMORY
JACE-NXS	Intel Celeron (650 MHz)	1 – Ethernet 4 – USB 1 – RS232 1 – RS-485 1 – LON	Web UI server option (R2) 40 GB hard drive UPS upgrade	Windows XP (with Java VM)	512 mB RAM 1 GB flash drive

Ideally suited for:

- Integration, monitoring and control in commercial and light industrial installations
- Installations where large amounts of archives and graphics are required
- Organizations whose IT policies dictate Microsoft products or where applications require a Windows-based platform

Hardware Options: JACE-NXS

The JACE-NXS is our most powerful JACE controller, and comes with the **embedded version of Windows XP**. With a powerful processor and a 1 gigabyte flash drive standard, this JACE has no moving parts, relying on **convection fin cooling**. A 40 gigabyte hard drive is optional.



JACE-NXS



Physical: Steel chassis, Convection fin cooling, integral UPS

Processor: 650 MHz Intel Celeron® CPU

RAM: 512 mB

OS: Windows XP

Storage: 1 GB flash drive **OR** 40GB hard drive

Power: 100 to 240 VAC

Port Connections: Ethernet (2), USB (4), LON, RS232, RS485

Battery backup

[Click for Data Sheet](#)

TRIDIUM

Module 3: Niagara System Advantages, Topic 3.3: Flexibility

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JACE TYPE	HARDWARE	CARD READERS	SUPERVISED INPUTS	RELAY OUTPUTS	DIGITAL INPUTS
Niagara Security JACE	JACE-201	2	6	4	3
	JACE-601	2	6	4	3
	READER MODULE	2	4	2	2
	I/O MODULE	—	8	8	2
	HARDWARE	READER MODULES	I/O MODULES	TOTAL READERS	TOTAL I/O
	JACE-201	up to 7	up to 8	16	64 / 64
	JACE-601	up to 15	up to 15	32	120 / 120
				PERSONNEL RECORDS	HISTORY RECORDS
				2,500	5,000
				10,000	50,000

Hardware Options:
Security JACE

The Security JACE is part of a complete hardware and software solution for the access control needs of a small building.

- ☒ **Physical:** Plastic, DIN-rail or screw mountable, air convection-cooled
- ☒ **Processor (CPU):**
 - 250 mHz Power PC405EP (JACE-201 platform)
 - 524 mHz Power PC440 (JACE-601 platform)
- ☒ **RAM:**
 - 128 mB SDRAM (JACE-201 platform)
 - 256 mB DDR RAM (JACE-601 platform)
- **Flash Storage:**
 - 64 mB (JACE-201 platform)
 - 128 mB (JACE-601 platform)
- ☒ **OS:** QNX (w/ Java Virtual Machine, Niagara^{AX})
- ☒ **Power:** 115 VAC
- ☒ **Port Connections:** RS232, RS485, Ethernet (2), USB (JACE-601 only)
- ☒ **Battery backup**

Hardware Options:
Security JACE

Together with a secure enclosure, battery backup, and remote card reader and input/output (I/O) modules, this system can control a total of **16 entry points (for JACE-201 based systems)** and a total of **32 entry points (for JACE-601 based systems)**, as well as provide intrusion detection and alarming.

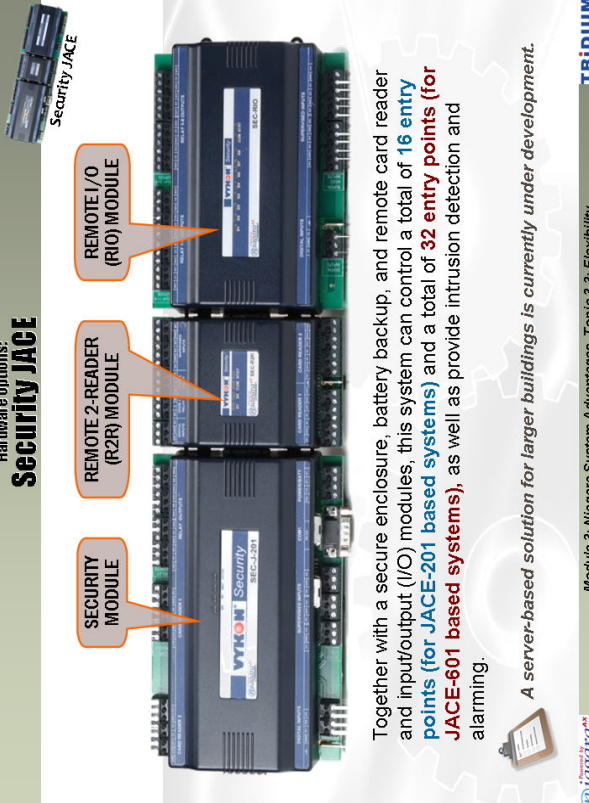
A server-based solution for larger buildings is currently under development.


MODIFIED JACE-201


SECURITY JACE-201 PLATFORM


MODIFIED JACE-601


SECURITY JACE-601 PLATFORM













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Hardware Options: Security JACE



Resource Capacities

	Security JACE-201	Security JACE-601
# of max Remote 2-Reader (R2R) Modules	7	15
# of max Remote I/O (RIO) Modules	8	15
Total Readers (entry points monitored)	16*	32*
Total I/O	64/64	120/120
Personnel Records	2,500	10,000
History Records	5,000	50,000

* Each JACE by itself can accommodate 2 readers. With a total of 7 R2Rs, a 201-based Security JACE can monitor up to 16 entry points $\rightarrow 2 + (7 \times 2) = 16$. The same applies to the 601-based Security JACE $\rightarrow 2 + (15 \times 2) = 32$.

Hardware Options: JACE-201/-601 vs. Security JACE



While the Security JACE is either JACE-201 or -601 based, there are **several physical differences** that distinguish it from the JACE-2 (-201) or JACE-601.

Card Reader I/O Relay Outputs

- Inputs/outputs along the perimeter
- Support for a 2-card reader
- Installed USB port (JACE-601 only)
- Hard-wired power connection * (vs. plug-in wall-mounted adapter)
- Larger dimensions

* A plug-in wall-mounted adapter can be hard-wired onto the JACE.

Digital Inputs Supervised Inputs Power



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