Powered by Niagara AX Framework®

VYKON®

PRODUCT GUIDE

Intelligent Building Automation and Control

- Intelligent Buildings
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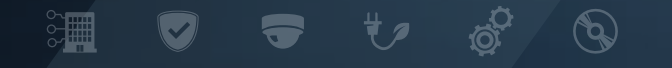
- Security



VYKON® is an open, intelligent building automation and control solution that meets all the challenges of real-world integration and enterprise connectivity and ensures complete interoperability among diverse facility systems.

Powered by the Niagara^{AX} Framework™, VYKON solutions enable facility managers, building owners and systems integrators to integrate proprietary and otherwise incompatible products into a unified enterprise solution through the synchronization, management and control of major building system functions vital in a facility, such as heating, ventilating, air conditioning (HVAC) systems, energy, lighting, security, fire, safety and more.

VYKON solutions utilize a highly scalable architecture that fits a single building or an entire global campus. VYKON solutions are deployed in office buildings, data centers, hotels, airports, manufacturing plants, hospitals, convenience stores, restaurants, churches, schools and universities throughout the world.

VYKON solutions offer compelling value to building owners and facility management including the ability to:

- Preserve existing investments in control and monitoring devices and integrate them with new standards-based technologies.
- Access and control diverse systems through a standard Web browser regardless of manufacturer.
- Combine information from different systems to support better facility management.
- Specify interoperable systems and applications from multiple vendors, thereby reducing vendor lock-in.
- Receive financial paybacks, lower operational costs, improve facility operations, maintain greater control, manageability and security of building operations, reduce energy costs and increase occupant/tenant satisfaction.
- Support for encryption of all communications using Transport Layer Security (TLS) / Secure Sockets Layer (SSL).

Any product or technology described in this document is subject to change.

VYKON MAKES BUILDINGS BETTER —

ONES THAT ARE SMARTER,

USE LESS ENERGY,

ARE MORE EFFICIENT,

HAVE LOWER ENERGY COSTS,

ARE SAFER AND

CONTRIBUTE TO

A SUSTAINABLE ENVIRONMENT.

BUILDING AUTOMATION & CONTROL

JACE®-300 Controller

Ideal for smaller facilities, remote sites and for distributing control and monitoring throughout large facilities. Optional input/output modules can be plugged in for applications where local control is required. Supports a wide range of field busses for connection to remote I/O and stand alone controllers.

256MB RAM/128MB Flash, Available RAM upgradable; 2 10/100 MB Ethernet ports, 1 RS-485 serial port, 1 RS-232 serial port, NDIO port, 2 communication card option slots. Standard drivers include oBIX Client / Server and Niagara Network (Fox) Client / Server. The JACE® 3E is designed for Battery less operation and DIN rail mounting.

JEC-334 Controller

Based on the JACE-300E Platform and IO-34 module, the JEC-334 is an ideal package for controlling and monitoring building systems including HVAC equipment, lighting, and meters. The Input/Output module provides 34 points for local control. The I/O count can be expanded with up to two (2) additional 16 point NDIO modules or up to four (4) 16 point remote NRIO modules. In addition to local control, the JEC-334 is licensed for up to 5 remote devices using LON, BACnet, Modbus, or Sedona drivers which are included.

Based on the JACE 300E. Supports multiple open protocols – BACnet, LON, Modbus, and Sedona. BTL® listed when BACnet driver is used – complies with B-BC (BACnet Building Controller). Built-in 24 volt AC/DC input power supply. 34 hardware control points (expandable with NDIO and NRIO modules). Din Rail mountable for quick installation.

JACE®-600E Controller

The JACE®-600E serves data and rich graphical displays to a standard Web browser via an Ethernet LAN or remotely over the Internet or dial-up modem. In larger facilities, multi-building applications and large-scale control system integrations Niagara^{AX} Supervisor software can be used to aggregate information (real-time data, history, alarms, etc.) from large numbers of JACEs into a single unified application.

The unit supports a wide range of field busses for connection to remote I/O and standalone controllers. Optional input/output modules can be plugged in for applications where local control is required. Optional Battery module provides up to 10 minutes station runtime during power outages.

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256 MB RAM/128 MB Flash, Available RAM upgradeable; (2)10/100 MB Ethernet ports, (1) RS-485 serial port, (1) RS-232 serial port, NDIO port and (2) communication card option slots. Standard features include Niagara station and Web User Interface. Standard drivers include oBIX Client/Server and Niagara Network (Fox) Client/Server. The JACE-600E is designed for DIN rail mounting.

JACE®-603 Controller

A direct replacement for older JACE-403, can run both R2 and AX software. The JACE-603 is an embedded controller/server platform designed for remote monitoring and control applications. The unit combines integrated control, supervision, data logging, alarming, scheduling and network management functions, integrated I/O with Internet connectivity and web serving capabilities in a small, compact platform.

The JACE-603 makes it possible to control and manage external devices over the Internet and present real-time information to users in web-based graphical views.

In larger facilities, multi-building applications and large-scale control system integrations, VYKON AX Supervisor™ software can be used to aggregate information (real-time data, history, alarms, etc.) from large numbers of JACE-603 JACEs into a single unified application.

Based on J6E platform. Includes one LON FTT-10A port for LON device integration. Direct, on-board I/O with six universal inputs, and 4 Form C relay outputs. One RS-485 port for connection to open and proprietary protocol devices. One RS-232 port for Integration or diagnostics and troubleshooting. Web UI services to support many simultaneous users over the intranet or Internet via a standard web browser.

JACE®-645 Controller

A direct replacement for older JACE-545s, can run both R2 and AX software. The JACE-645 combines integrated control, supervision, data logging, alarming, scheduling, device communication and network management functions, with Internet connectivity and web serving capabilities in a small, compact platform.

It is ideal for smaller facilities, remote sites, and for distributing control and monitoring throughout large facilities. It is also ideal for managing and controlling today's energy applications.

The JACE-645 is part of the VYKON portfolio of Java-based controller/server products, software applications and tools, designed to integrate a variety of devices and protocols into unified, distributed systems.

Based on J6E platform. Includes one LON FTT-10A port for LON device integration. Four RS-485 ports for connection to open and proprietary protocol devices. Two RS-232 ports for diagnostics and trouble shooting. Web UI services to support many simultaneous users over the intranet or Internet via a standard web browser.

JACE®-700 Controller

The JACE®-700 is a high performance JACE that fits between the JACE-600E and the JACE-NXT. The unit follows the design style of our JACE-300/600 series and is ideal for any facility needing a JACE with more resources. The JACE-700 offers a faster processor (667 MHz), more standard memory than the JACE-300/600's with 1 GB of RAM. This unit also offers more Flash storage memory than any previous embedded JACE platform.

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667 MHz 440Epx Power PC processor; requires Niagara^{AX} Release 3.5 or higher. 1 GB RAM. 512 MB NAND Flash memory on board for database storage, (2) 1 Gigabit Ethernet ports; (1) RS-232 and one isolated RS-485 ports. Internal battery backup and (2) JACE communication slots for optional JACE communication interface card use.

JACE®-NXT Controller

The JACE®-NXT is ideally suited for integration, monitoring and control in commercial and light industrial installations. The JACE-NXT has superior computing power with 2 GB RAM, and a 1.2 GHz, 800 MHz FSB Celeron processor. This superior computing and processing power make it ideal for installations where large amounts of archives and graphics are required. J-NXT-AX-FL with 2 GB Flash memory and integral UPS power supply has no moving parts, which provides increased reliability. For installations with large storage requirements, the J-NXT-HD-AX includes a 250 GB Hard Disk Drive.

Both platforms include embedded Microsoft™ Windows XP, which is ideal for organizations whose IT policies dictate Microsoft products, or when applications such as OPC require a Windows-based operating system.

AX SoftJACE™

Complete real-time control, dynamic graphics and multiprotocol integration capabilities of the Niagara^{AX} Framework on the hardware of your choice.

The AX SoftJACE™ makes it easy to address unique application needs such as rack mounting, extended temperature ranges and industrial packaging in a Windows environment.

The SoftJACE provides all of the capabilities of a programmable controller, multi-protocol adapter, network manager, Web server (with optional Web User Interface), data logger and alarm system in a single software solution. The AX SoftJACE communicates with external devices utilizing Ethernet-based protocols, and currently supports the industry's most common standard protocols: OPC, BACnet IP, Modbus TCP, oBIX, XML and SNMP.

Option Cards

LON, RS-232, RS-485, GPRS Modem, SRAM Card, Z-Wave, Wireless Sedona, and VYKONstat Wireless option cards are available for JACE-300E, JACE-600E, JACE-600, JACE-700, Security JACE-602 and 616, and JACE-603 and JACE-645.

These option cards offer the flexibility to add the interfaces needed to integrate LON, Modbus, BACnet, and several other open and proprietary protocols.

16 I/O

Includes 8 Universal Inputs, 4 Form A Relay Outputs and 4 0-10 VDC Analog Outputs. Contains removable screw terminal connectors and status indication LEDs. Intended for DIN rail mounting.

34 I/O

Includes 16 Universal Inputs, 10 Form A Relay Outputs and eight (8) 0-10 VDC Analog Outputs. Contains removable screw terminal connectors and status indication LEDs. This 34 I/O also contains an on-board 24V AC/DC power supply. Intended for DIN rail mounting.

IO-16-485 Remote Input/Output Module

The IO-16-485 Remote Input/Output Module allows JACE controllers to extend monitoring and control applications to include inputs/outputs that are remotely located up to 4,000 feet from the JACE. The module supports a mix of analog and digital inputs and outputs — (8) universal inputs, (4) relay outputs, and (4) analog outputs. Connection to IO-16-485 modules is established via an industry standard RS-485 multi-drop communications bus, enabling one wiring trunk to greatly reduce the "homerun" wiring requirements of many input and output devices. Depending upon application and JACE model selected, up to (16) IO-16-485 devices can be utilized on a single JACE supporting a total of up to 256 I/O points.

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(16) I/O points per device, (8) universal inputs – Type 3 (10k) Thermistors, 0-100K ohm, 0-10 vdc, 0-20 mA with external resistor, (4) relay outputs (Form A contacts, 24 VAC @ .5 amp rated), (4) analog outputs (0-10 vdc) and up to (16) remote IO-16-485 modules max per JACE (limit of 4 on a JACE-300E XPR). Power Options are direct connect (Pin compatible) with the NPB-PWR-UN power supply. Modules can be powered directly from select JACE models with 15VDC outputs. External 12-15 VDC power supply. DIN rail or surface mounting.

24 VAC Power Supply

VAC/DC Power supply module. Provides 30 watts power at 15 VDC. DIN Rail mountable for easy installation.

Universal Power Supply

90-263 V AC 50/60 Hz Auto Sensing Power Supply Module, DIN Rail Mountable.

VYKONstat

The VYKONstat series of thermostats can be used in any thermostat application in AHU, Fan Coil and standard zone control equipment. They have many modes of operation and control 0-10V, Staged, Floating Point heating or cooling terminal systems. The VYKONstat series thermostats are protocol agnostic and are supplied pre-programmed to suit most of today's applications, require little configuration, and are easy to install, wire and commission.

The series is available in four variations: BACnet MS/TP; Echelon-LonTalk; Wireless or as a standalone. Features include advanced occupancy functions, 3 configurable inputs, pre-configured sequences, lockable key pad and 24 VAC On/Off, floating or analog control. In addition, the thermostats have a simplified User Interface and a large, backlit LCD display.

Optionally, VYKONstats come with an advanced PIR occupancy sensor, which can be used for both local and remote overriding of building systems.

AX Supervisor™

The AX Supervisor™ is a flexible network server used in applications where multiple Niagara^AX based controllers will be networked together. The AX Supervisor serves real-time graphical information displays to standard Web-browser clients and provides server-level functions such as centralized data logging, archiving, alarming, real-time graphical displays, master scheduling, system-wide database management and integration with enterprise software applications. It is available for Windows and Linux as a small building version.

The AX Supervisor also includes a comprehensive, graphical engineering toolset for application development.

VYKON SECURITY SOLUTIONS EXTEND THE INTELLIGENT BUILDING CONCEPT INTO THE PHYSICAL SECURITY MANAGEMENT WORLD WITH A COMPREHENSIVE, OPEN SYSTEM THAT INTEGRATES ALL COMMON BUILDING FUNCTIONS — ENVIRONMENTAL CONTROL, INTRUSION DETECTION, ACCESS CONTROL, LIGHTING AND ENERGY MANAGEMENT SYSTEMS.


SECURITY

VYKON Enterprise Security

VYKON Enterprise Security is a comprehensive access control and security management solution, built on a truly open, IP-based platform. Developed using the Niagara^{AX} Framework, VYKON Enterprise Security provides unparalleled interoperability within traditional security environments and extends seamlessly to create a unified, intelligent building by integrating with today's diverse facility systems including environmental controls, lighting, energy management, video, and photo identification.

Enterprise Security provides scalability ranging from single door solutions to multi-building/multi-campus deployments. Entirely accessible from any standard web browser, the solution provides flexible access into the system anytime, anywhere, while liberating end users from dedicated client workstations in the traditional client / server model. VYKON Enterprise Security is open — open architecture, open framework, open distribution, and open protocol support.

Security Credentials

VYKON offers several options for access control credentials. IsoProx® II 125 kHz HID credentials in PVC and Plastic card options, Key fobs, and Vehicle and ID card tags are options for standard access control applications.

For more advanced access control applications, VYKON offers iClass® dual technology (125kHz and 13.56 MHz HID) and iClass credentials in PVC and Plastic card options and Key fobs. iClass cards offer "Smart Card" technology, offering a higher level of security by employing cryptography, encryption, and the internal computing power of the smart chip.

Security JACE®-602

The SEC-J-602 is an ideal solution for a small, entry level access control system. The SEC-J-602 may be expanded to support up to 32 doors and integrated BAS systems. Connections for 2 Card Readers, 6 Supervised Inputs, 4 Form C Relay Outputs, and 3 Digital Inputs. Includes 128 MB RAM/64 MB Flash, (2) 10/100 MB Ethernet ports, (1) RS-485 serial port, (1) RS-232 serial port and (2) communication card option slots. Contains removable screw terminal connectors and status indication LEDs. The Security JACE®-602 is designed for DIN rail mounting and supports up to 2 card readers, 20,000 personnel records and 50,000 transactional history records. The SEC-J-602 can support up to 32 card readers and BAS drivers with additional licenses.

Security JACE®-616

Connections for 2 Card Readers, 6 Supervised Inputs, 4 Form C Relay Outputs, and 3 Digital Inputs. Includes 256 MB RAM/128 MB Flash, (2) 10/100 MB Ethernet ports, (1) RS-485 serial port, (1) RS-232 serial port and (2) communication card option slots. Contains removable screw terminal connectors and status indication LEDs. The Security JACE®-601 is designed for DIN rail mounting and supports up to 16 card readers, expandable to 32, 20,000 personnel records, 50,000 transactional history records and security/BAS from a single controller. The SEC-J-616 can support up to 32 card readers with additional licenses.

Remote Reader Module

Connections for 2 Card Readers, 4 Supervised Inputs, 2 Form C Relay Outputs and 2 Digital Inputs. Contains removable screw terminal connectors and status indication LEDs.

Remote I/O

Connections for 8 Supervised Inputs, 8 Form C Relay Outputs and 2 Digital Inputs. Contains removable screw terminal connectors and status indication LEDs.

VYKON offers a comprehensive line of access cards and 125 KHz and iCLASS® 13.56 MHz security card readers. Here are a few examples. For more information, contact an authorized VYKON representative.

ProxPoint® Readers

ProxPoint® Proximity Readers and PIN Readers in a variety of sizes and mounting options. Indoor/outdoor, 125 KHz technology.

iCLASS® and MultiClass™ Readers

iCLASS Readers Support Smart Card Technology. MultiClass Readers support both Prox and SmartCard Technologies to allow owners to migrate to the latest technology without having to replace their existing cards. Indoor/outdoor, 13.56 MHz or Dual technology.

SmartKey Intrusion Pad

LCD display and keypad for arming and disarming intrusion zones. Display also provides feedback to the user regarding arming status and status of individual intrusion points. (Requires a separate NPB-2X-485 RS-485 option card for the Security JACE). A maximum of 6 display/keypads may be added to the 485 bus on a Security JACE-602 and 616.

Fargo 4500

VYKON offers the Fargo 4500 PhotoID printer from HID. This printer is offered in single/dual-sided printing and single/dual sided lamination models. An attractive feature of this printer is that it can be field upgraded — purchase what you need today, and upgrade when your requirements change.

Printer Accessories

VYKON also offers a variety of printer ribbons, cleaning supplies and photo station equipment.

VYKON VIDEO PROVIDES SEAMLESS INTEGRATION BETWEEN TODAY'S BUILDING APPLICATIONS AND DIGITAL VIDEO RECORDERS, IP CAMERAS, NETWORK VIDEO RECORDERS AND VIDEO MANAGEMENT SOLUTIONS TO FIT APPLICATIONS FROM SMALL SINGLE-SITE LOCATIONS TO LARGE-SCALE ENTERPRISE SOLUTIONS.

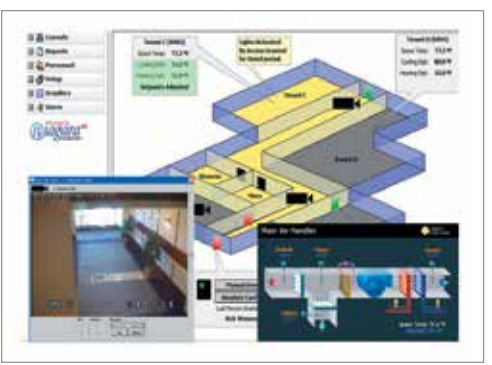
VIDEO

VYKON Video

Built on the Niagara^{AX} Framework^{TM}, VYKON Video can integrate with other security and video products to provide a complete building automation, card access and video monitoring system, or it can be used as a stand-alone system providing a video window that identifies an incident and notifies the proper personnel who can manage the response from anywhere. VYKON Video works with local and remote buildings equally as well.

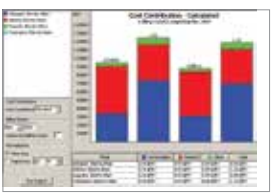
Bi-directional alarming, a unique feature of VYKON Video, allows the CCTV system to generate alarms and initiate actions in the building automation, security, or access control systems. Conversely, an alarm in any of the building systems can initiate changes in record rates and control camera position. Building operators no longer need to search hours of video recording for an event because video clips are associated with alarms for instant video recall from any connected alarm console.

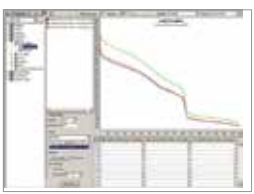
VYKON offers drivers for Dedicated Micros NetVu connected DVRs and NVRs, Milestone Network Video Management, Axis IP Cameras and Honeywell RapidEye.



VYKON ENERGY SOLUTIONS OFFER SCALABLE, MODULAR ARCHITECTURES DESIGNED TO MEET THE NEEDS OF TODAY'S FAST-CHANGING, FAST-GROWING ENTERPRISES, WHETHER IT'S A SINGLE FACILITY, MULTI-BUILDING ENVIRONMENT OR GLOBAL APPLICATION.


ENERGY





VYKON Energy Suite

VYKON Energy Suite is an intelligent, web-based energy infrastructure solution that provides greater visibility into the energy consumption patterns of buildings, equipment and systems. The solution is a flexible suite of applications that enable users to connect, monitor and gather up-to-date energy information. It includes tools to analyze and aggregate loads, benchmark facilities and determine how building characteristics such as size, equipment type, schedules and climate correlate with energy.

VYKON® Tenant Billing Service

VYKON® Tenant Billing Service (VTBS) is a Niagara^{AX} Framework application which enables users to easily monitor tenant utility usage and create invoices based on that usage. The application serves as both a monitoring and invoice generation tool, allowing invoices to be manually or automatically generated for a variety of utility usage patterns. Access to the VTBS software is accomplished using a simple web browser — no additional licenses or software are required for multiple users. Invoices can be generated on a scheduled basis, and printed or e-mailed in PDF format.

VYKON Tenant Billing Service runs on AX Supervisor or Enterprise Security Server platforms.

A VARIETY OF DRIVERS

ARE AVAILABLE

THAT ARE COMPATIBLE WITH

THE NIAGARA^{AX} FRAMEWORK.


DRIVERS

Open Drivers

BACnet

M-Bus

XML

Database Drivers

HTTP

Modbus

SNMP

ZigBee

KNX/EIB

oBIX

Z-Wave

LON

OPC

Web Services

OpenADR

Legacy Drivers

VYKON has an extensive library of legacy drivers. More information is available upon request from VYKON.

Additional Drivers

The Niagara^{AX} Framework has open development tools that have allowed independent developers to create drivers for use by the Niagara Community. For more information, please contact VYKON or visit www.niagara-central.com.

New Drivers

VYKON and the Niagara Community independent developer network can develop new drivers upon request. For more information, please contact VYKON.

THE SEDONA FRAMEWORK™ IS THE INDUSTRY'S FIRST, OPEN SOURCE DEVELOPMENT FRAMEWORK THAT PROVIDES A COMPLETE SOFTWARE PLATFORM FOR DEVELOPING, DEPLOYING, INTEGRATING, AND MANAGING PERVASIVE DEVICE APPLICATIONS AT THE LOWEST LEVEL.

SEDONA FRAMEWORK

Sedona Framework Option Card

The Sedona Framework Option Card is part of a family of wireless devices that enables developers to implement embedded wireless systems using the Sedona Framework with 6LoWPAN networking stack and IEEE802.15.4. The option card is wired or wireless and enables the integration into a JACE, a network of Sedona Framework-based devices over the 802.15.4, 6LoWPAN wireless or wired MSTP type network. This module has a maximum distance capability of up to 1 km (line of sight, your mileage may vary depending on the building layout and materials involved).

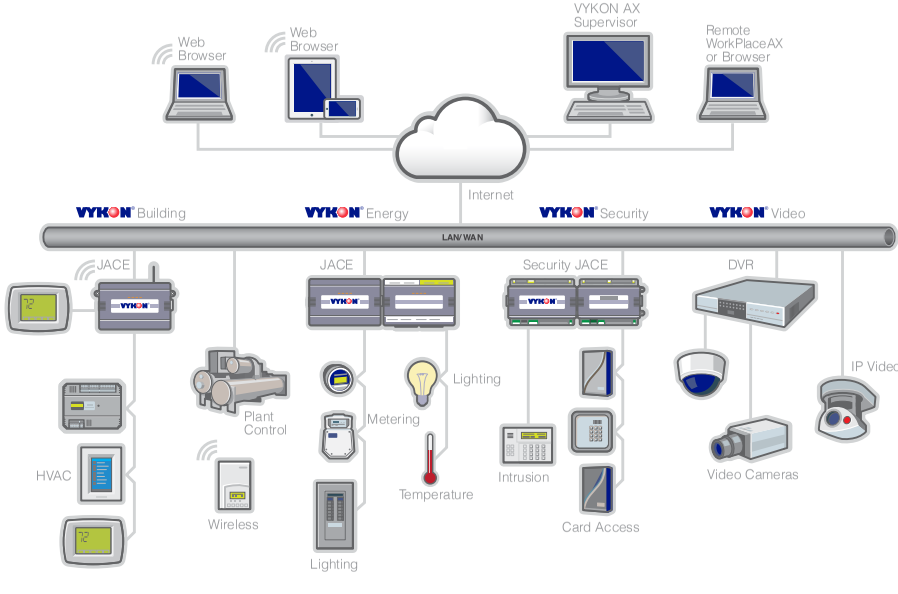
2.4GHz IEEE802.15.4 compliant with 6LoWPAN network, plugs into standard JACE-300E, JACE-600E, or JACE-700 option card socket and 16 MHz, 32 bit RISC processor with 96 Kb RAM, 192 Kb ROM. Diagnostic indicator LEDs provided for visual indication of operation and antenna included. Niagara Workbench release 3.4.52 or higher is required. An optional antenna extension cable is available for relocating antenna outside JACE enclosure.

R-2 TO AX MIGRATION

R2 EOL Replacement Board & RB Replacement Board

Tridium has announced the EOL (End of Life) for the R2 product family. R2 products will be phased out by the end of 2015. This includes the JACE 4 and 5 product family. To aid customers with conversion to Niagara AX a new line of NPM6E based controllers have been introduced. The RB-603 and RB-645 are embedded replacement controller/server platforms designed for remote monitoring and control applications. These units provide direct replacement/upgrade capabilities for the older JACE-403 and JACE-545 controllers respectively. The RB-603 and RB-645 may be used to migrate R2 stations to new faster performing hardware. The end user can develop migration plans that allow migration to Niagara AX at their own pace. The embedded controllers combine integrated control, supervision, data logging, alarming, scheduling and network management functions, integrated IO with Internet connectivity and web serving capabilities in a small, compact platform. The RB-603 and RB-645 make it possible to control and manage external devices over the Internet and present real time information to users in web-based graphical views.

VYKON Enterpise Integration Architecture



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