VYKON RB-603 & RB-645

Overview

The VYKON RB-603 and RB-645 are embedded replacement controller/server platforms designed for remote monitoring and control applications. These specially designed units provide direct replacement/ upgrade capabilities for the older JACE-403 and JACE-545 controllers respectively. The embedded controllers combine integrated control, supervision, data logging, alarming, scheduling and network management functions, integrated IO with Internet connectivity and web servi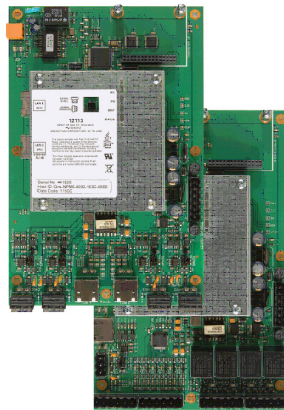ng capabilities in a small, compact platform. The RB-603 and RB-645 make it possible to control and manage external devices over the Internet and present real time information to users in web-based graphical views.

In addition to supporting Niagara^AX Framework applications, the RB-603 and RB-645 can optionally support Niagara R2 applications. This option provides the ideal platform for projects currently utilizing Niagara R2 technology where a cost effective migration to Niagara^AX Framework is desired. The Niagara^AX Framework compatible platform can be installed and optionally configured to support a facility utilizing a Niagara R2 Framework application today. At a later date, the facility can migrate to a Niagara^AX Framework application, thus spreading the cost of the migration across multiple phases.

 The RB-603 and RB-645 are 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. VYKON products are powered by the Niagara^AX Framework®, the industry's leading software technology that integrates diverse systems and devices into a seamless system. Niagara^AX supports a range of protocols including LonWorks®, BACnet®, Modbus, oBIX and many Internet standards. The Niagara^AX Framework also includes integrated management tools to support the design, configuration and maintenance of a unified, real-time controls network.

Applications

The RB-603 and RB-645 are designed to provide installers an optimized approach to upgrading older Niagara R2 based installations or Niagara^AX installations which currently utilize the JACE-403 or JACE-545 controllers. The RB-603 or RB-645 is an exact format replacement circuit board with all connectors and mounting holes in the same locations as the original JACE-403 and JACE-545 products. This design facilitates an easy removal and replacement process requiring minimal time to achieve.

JACE-403 Before Replacement

After Installing RB-603

Ordering Information

Part Number	Part Description
RB-603	Base Unit including two Ethernet ports, one RS-232 port, one RS-485 port, one LonWorks® FTT-10A port, six universal inputs, and four Form C relay outputs. Web User Interface and Niagara Connectivity included. oBIX Client/Server and LONworks drivers included
RB-645	Base Unit including two Ethernet ports, two RS-232 ports, four RS-485 ports and one LonWorks® FTT-10A port. Web User Interface and Niagara Connectivity included. oBIX Client/Server and LONworks drivers included
R2-RB-6xx	Niagara R2 application option which allows the installer to utilize a Niagara R2 based station on either the RB-603 or RB-645 platforms. Includes Niagara R2 station license and individual drivers transferred from original license. *Note: For replacement of R2 JACE platforms the VYKON 603/645 order form must be submitted at the time of order to transfer license features. Restricted features may not be transferrable.*

Specifications

Platform

- PowerPC 440 524 MHz processor
- 128MB DDR RAM & 128 MB Serial Flash
- Optional 256 MB DDR RAM
- SLA Battery Backup
- Real-time clock

RB -603 Communications

- Two 10/100 Mb Ethernet port – RJ-45 connection.
- One RJ-45 connector for RS-232 port.
- One screw terminal RS-485 port (up to 78,600 baud for MSTP).
- One LonWorks port – FTT-10A with Weidmuller connector.
- One Niagara^{AX} option slot (see available option modules below). Not compatible with R2 stations.

RB -645 Communications

- Two 10/100 Mb Ethernet port – RJ-45 connection.
- Two RJ-45 connectors for RS-232 port.
- Four screw terminal RS-485 ports (up to 78,600 baud for MSTP).
- One LonWorks port – FTT-10A with Weidmuller connector.
- One Niagara^{AX} option slot (see available option modules below). Not compatible with R2 stations.

Operating System

- QNX Real-time Operating System
- Sun HotSpot JVM Java Virtual Machine
- Requires Niagara^{AX} 3.6.47 or later; or Niagara R2 2.301.535 or higher

Available Niagara^{AX} Option Modules

- NPB-LON   LON® Card
- NPB-232   RS 232 Card
- NPB-2X-485   Dual Port RS 485 Card
- NPB-GPRS-W   GPRS Modem with Wyless SIM Card
- NPB-ZWAVE-US   ZWAVE Card/Driver US
- NPB-ZWAVE-EU   ZWAVE Card/Driver EU
- NPB-SED-001   Sedona Wired/Wireless Card

RB-603 Inputs/Outputs

- Four Form C (SPDT) relay outputs rated for 24 VAC/DC @ 2 Amps resistive.
  - One LED indicator for each relay
- Six Universal Inputs for 10K ohm Type III
  - (10K 4A1-International) Thermistor, 4/20 mA current loop, 0 to 10 volt, or dry contact.
  - 12-bit A/D converter
  - Thermistor Sensor Range -23.3°C to 57.2°C (–10° to 135° F). Input accuracy is in the range of ±1% of span, type III thermistor curve supported
  - 0 –10 volt or 4/20 mA accuracy is ±2% of span, without user calibration. Uses an external resistor for current input (four provided). Self powered or board powered sensors accepted
  - Dry contacts (on UI) 20 Hz max. frequency (25 ms minimum pulse width). 3V open circuit, 300 mA short-circuit current.
- Board provides 20 VDC @ 80 mA to drive 4/20 mA powered sensors
- 24 VDC terminal and external resistor can be used if monitoring contacts that require higher voltages or higher current.
- All I/O connections are screw terminals on 0.2" centers.

Power Supply

- 24VAC with center tap

Other

- Maximum LON devices = up to 124
- Maximum MSTP devices per RS-485 port = 31 standard load
  - 124 ¼ load devices; requires one MSTP driver per port.
  - Port speeds supported are:
    - 4,800 baud
    - 9,600 baud
    - 19,200 baud
    - 38,400 baud
    - 57,600 baud
    - 76,800 baud

Environment

- Operating temperature range: 0° to 50°C (32°F to 122°F)
- Storage Temperature range: 0° to 70°C (32°F to 158°F)
- Relative humidity range: 5% to 95%, non-condensing

Agency Listings

- RoHS Compliant
- BTL
- UL 916 recognized
- C-UL recognized to Canadian Standards Association (CSA) C22.2 No. 205-M1983 "Signal Equipment"
- FCC part 15 Class B
- CE

The following chart identifies the compatible 603/645 platform part numbers and optional Niagara R2 license part numbers for various Niagara R2 platforms:

Niagara R2 Platform	603/645 Replacement Platform	Niagara R2 License Option
JACE-401	RB-603	R2-RB-6XX
JACE-402	RB-645	R2-RB-6XX
JACE-403	RB-603	R2-RB-6XX
JACE-501	J-645	R2-6XX
JACE-502	J-645	R2-6XX
JACE-511	J-645	R2-6XX
JACE-512	J-645	R2-6XX
JACE-545	RB-645	R2-RB-6XX

Niagara^AX Platform	603/645 Replacement Platform	Niagara^AX License Option
J-403-AX	J-603	Requires build 3.6.47 or higher
J-545-AX	J-645	Requires build 3.6.47 or higher