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 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.

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.
Ordering Information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Part Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RB-603</td>
<td>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.</td>
</tr>
<tr>
<td>RB-645</td>
<td>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.</td>
</tr>
<tr>
<td>R2-RB-6xx</td>
<td>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. <em>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.</em></td>
</tr>
</tbody>
</table>

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® 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® 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® 3.6.47 or later; or Niagara R2 2.301.535 or higher

Available Niagara® 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:

<table>
<thead>
<tr>
<th>Niagara R2 Platform</th>
<th>603/645 Replacement Platform</th>
<th>Niagara R2 License Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>JACE-401</td>
<td>RB-603</td>
<td>R2-RB-6XX</td>
</tr>
<tr>
<td>JACE-402</td>
<td>RB-645</td>
<td>R2-RB-6XX</td>
</tr>
<tr>
<td>JACE-403</td>
<td>RB-603</td>
<td>R2-RB-6XX</td>
</tr>
<tr>
<td>JACE-501</td>
<td>J-645</td>
<td>R2-6XX</td>
</tr>
<tr>
<td>JACE-502</td>
<td>J-645</td>
<td>R2-6XX</td>
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<tr>
<td>JACE-511</td>
<td>J-645</td>
<td>R2-6XX</td>
</tr>
<tr>
<td>JACE-512</td>
<td>J-645</td>
<td>R2-6XX</td>
</tr>
<tr>
<td>JACE-545</td>
<td>RB-645</td>
<td>R2-RB-6XX</td>
</tr>
</tbody>
</table>

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<th>Niagara** Platform</th>
<th>603/645 Replacement Platform</th>
<th>Niagara** License Option</th>
</tr>
</thead>
<tbody>
<tr>
<td>J-403-AX</td>
<td>J-603</td>
<td>Requires build 3.6.47 or higher</td>
</tr>
<tr>
<td>J-545-AX</td>
<td>J-645</td>
<td>Requires build 3.6.47 or higher</td>
</tr>
</tbody>
</table>

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