

Developments in Web-enabled RGA and Communication Options, Rob Bunn, MKS Instruments

Developments in Web-enabled RGA and Communication Options

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Technology for Productivity

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Issues with Serial Connections

- Point-to-Point RS-232 or RS-422 control interface
- Each RGA requires a separate Serial Port and cable
- Cables are now costly, and lengths should be < 50 feet
- Serial ports are becoming increasingly unavailable in laptop computers
- Requires PC located close to the RGA

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Other Architecture Issues...

- **Local PCs are often problematic in factory environments**
 - Space and facilities requirements
 - Potential reliability issues in certain environments
 - Security threats, mischief and theft
 - Administration overhead issue (more computers to support)
- **Local, Proprietary, Platform-dependent software**
 - Instrument Supplier Specific
 - Platform Specific (Windows, Linux, Apple Mac)
 - Limited integration / customisation
 - Software required for remote operation

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A Changing Control Paradigm...

- Eliminate the need for local PCs
- Permit unlimited flexibility in control location(s)
- Use faster, lower cost, high-reliability communications
- Reduce or eliminate need for proprietary software
- Eliminate restriction to specific platforms
- Provide a high degree of integration flexibility:

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The New Architecture

- This has led to a new family of instrumentation for the RGA world.
- The technologies and approaches are:
 - Ethernet connections
 - TCP / IP communications
 - ASCII command protocol for end-user programmability
 - EasyView PC software application
 - Process Eye Professional PC software application

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Ethernet TCP/IP Implementation

- Ethernet now cheap and ubiquitous
- Reliable TCP / IP communications
- "Unlimited" RGAs connected to a network
- Commonly available, inexpensive cables, direct lengths up to 300'
- One Ethernet port required per device
- Direct access from "anywhere"

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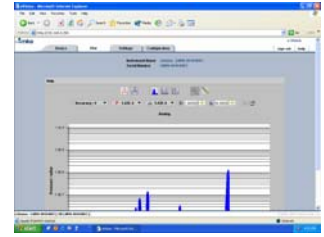
Technology Issues Addressed

- Sensor management for large installations
 - Device Manager
- Remote maintenance of sensors
 - Web-interface
 - Device manager
- Physical reset mechanism
 - Reset IP address to default



Web Interface

- Web operation through java enabled browser
- Presents basic RGA control, data acquisition and display functions
- No proprietary software required
- Built-in e-diagnostic functionality
 - Analog (Calibration)
 - Bar Chart (Analysis)
 - Leak Check
- Simple, user friendly interface



ASCII Interface

- The ASCII command protocol permits end-user programming of the RGA
- This enables tight integration in customer applications such as custom sensor functions on an OEM process tool
- All functions of the RGA are implemented via this protocol
- Programming is completely independent of host platform and language
- To facilitate advanced programming, SDKs are available for Java, C++, VB 6 and LabView

Summary

- Traditional communication technologies for RGAs limits integration and application flexibility
- Advances in IT have led to more flexibility and reliability than ever before, without increasing cost of ownership
- MKS web-enabled RGAs are an effective implementation of new technology to enhance the use and value of RGAs
- Ease of integration into customer specific applications, for example EPICS and TANGO.

Questions?