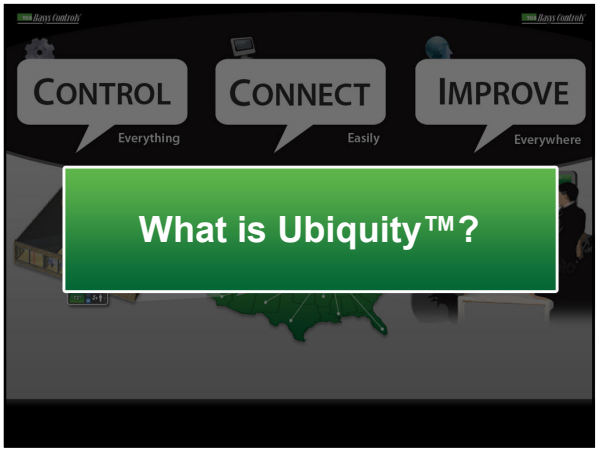


What is Ubiquity™?

u•biq•ui•ty (noun): the state of being, or seeming to be, everywhere at once

Ubiquity™ is a powerful building management system that allows facility managers to be "everywhere at once" via the Internet.

What is Ubiquity™?

Ubiquity™ combines the local building control network (made up of TCS hardware) with a centrally hosted Web application that sends, receives, stores, and processes building control data.

Ubiquity™ coordinates with hundreds of these sites and then routes information to designated recipients.

What is Ubiquity™?

- A centrally hosted software package accessed through a standard browser interface (no additional software required)
- A control, monitoring and alarming package
- An extensible and scalable application with capabilities to import and export data
- An enterprise-wide asset protection package

The Ubiquity™ Advantage

- Ease of Use
- Multiple Tiers of Users
- Centrally Hosted Server
- Enhances Building Intelligence
- All Information is Recorded
- Utilizes Current TCS Hardware
- Expanded Features
- Software Always Current
- Security & Redundancy
- Adaptable for New Technologies
- Tremendous ROI Opportunities

Ubiquity™ Security

- All communications between the Gateway and server are encrypted
- Sensitive communications are SSL enabled
- Restricted capabilities of Communication Gateway
- Secure log-in on Ubiquity site
- Server can be hosted locally

Central Server Protection

- **Server cluster with RAID configuration**

  The server cluster utilizes a clustering software packages that allows failures to occur with individual servers, while still remaining online. The RAID configuration writes data to multiple locations to minimize the chances for data corruption.

- **Secure co-location facility**

  The Ubiquity co-lo facility has the latest in keycard and server rack security. It also includes numerous Internet & power redundancies, dry fire suppression technologies and a disaster proof infrastructure.

Central Server Protection *-- continued*

- **Regular off-site back-up**

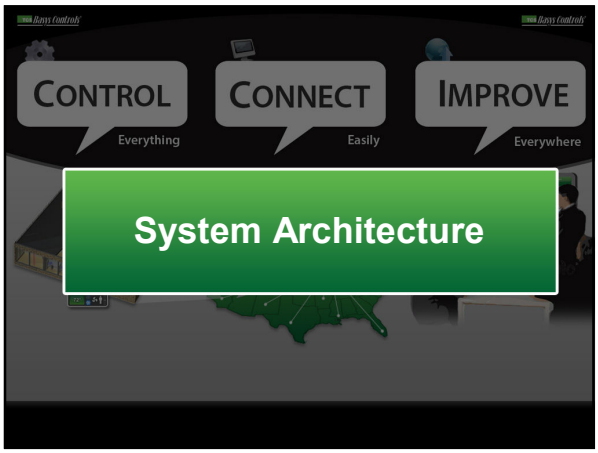
  All data is backed up regularly at an offsite location.

- **Failover server**

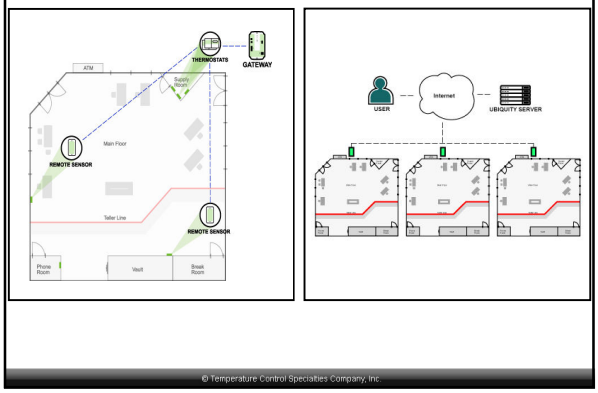
  An offsite server provides essential services (Site monitoring, programming & scheduling, and alarms) in the event of a catastrophic failure with the main server cluster.

- **Latest software updates**

  TCS installs and maintains the latest security and functionality updates for the Ubiquity application components.



Single-Site - OR - Multi-Site



Gateway Options -- QD2040 *(Multi-Function)*

- Embedded web server with graphical interface
- Server software for on-site access/commissioning
- Built in software application for pre-installation controller addressing/programming
- Works with centrally hosted Ubiquity server
- Firmware upgradeable
- More robust CZS, VAV, & Water Loop control
- Local & remote alarms – can alarm out if ISP connection is lost
- Implement energy policies to both alarm points as well as take corrective action

Ubiquity Tour Notes

• HTML Only & My Sites Page	Section 4
• Site Home Page	Section 4
• User Setup	Section 5
• Alarming	Section 9
• Global Functions	Section 7,8,9
• Reports	Section 10
• Sub-Systems	Section 12
• Graphical User Interface	Section 14
• Enterprise Functions	Section 11,13,15

Energy – *Ubiquity Manual Section 11*

- Utilities break down energy into two components:

Demand

and

Consumption

Energy – *Ubiquity Manual Section 11 – cont'd.*

– Demand

Is measured in kW and represents the instantaneous load on the electrical circuit.

Since there is no way to store electricity this is very important to a utility.

Energy – *Ubiquity Manual Section 11 – cont'd.*

When billing commercial properties Utilities assess a demand charge. This is based off of the "**Maximum Demand**" set for the month.

Maximum Demand is often pre-negotiated with the utility. If the commercial property can come underneath what they estimated they receive significant savings. If they exceed it they are often penalized heavily.

Energy – *Ubiquity Manual Section 11 – cont'd.*

Maximum Demand is calculated by the high average reading over a 15 - 30 minute interval.

This remains the charge for the entire month.

Typically the Utility will then bill from that maximum demand a charge between $5 and $25 per kW.

Energy – *Ubiquity Manual Section 11 – cont'd.*

Demand charges oftentimes account for 50% of the total Energy bill, and in the summer or during "Emergency" periods can account for a much larger percentage.

Energy – *Ubiquity Manual Section 11 – cont'd.*

– **Consumption**

Is measured in kWh and represents the amount of electricity used at the facility. Consumption is calculated as demand over an hour.

FYI – Ten 100-watt light bulbs that are on for an hour would equate to 1 kWh.

Energy – *Ubiquity Manual Section 11 – cont'd.*

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Is measured in kWh and represents the amount of electricity used at the facility. Consumption is calculated as demand over an hour.

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Energy – *Ubiquity Manual Section 11 – cont'd.*

Like its name denotes, **consumption** represents the amount of electricity the site has consumed during the month.

Unlike demand, the **consumption** is charged differently depending on the time of day. In larger markets this usually is broken up into three periods with the time between 10:00am - 4:00pm being the most expensive time.

Energy – *Ubiquity Manual Section 11 – cont'd.*

Breakdown of a Bill –

If a facility runs a max demand of 50 kW and utilizes 6000 kWh during the peak period and 3000 during an off-peak time over the summer period.

Demand	**50 X $12.00 per Kw = $600**
Summer Peak Charge	**50 X $5.00 per Kw = $250**
Peak Consumption	**6000 X .14 per Kwh = $840**
Off-Peak Consumption	**3000 X .10 per Kwh = $300**
Total for Bill	**$1990**

(43% from Demand Charges)