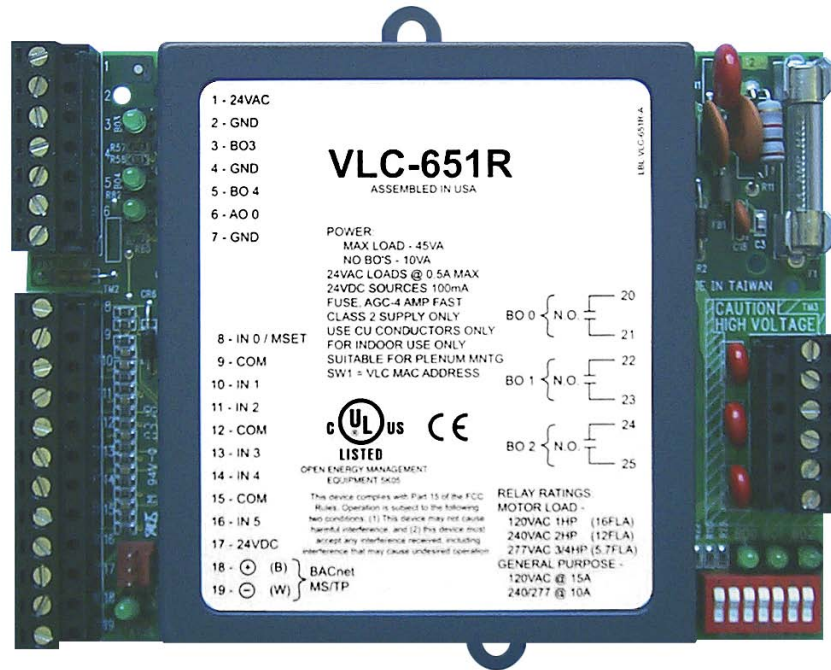## Features and highlights

- **Capable**
  Six universal 10-bit inputs, three binary high-current relay outputs, two binary triac outputs, and one analog output.

- **Interoperable**
  Fully BACnet-compliant on MS/TP LAN at up to 76.8 Kbps.

- **Versatile**
  Fully programmable for fan-coil, unit ventilator, and other multi-speed fan or motor applications.

- **Reliable**
  AZ60 processor and extensive onboard filtering, with all program data backed up in non-volatile flash memory.

- **Fast**
  Internal logic loop of 100 msec.

The Alerton BACtalk® VLC–651R is a versatile, fully programmable BACnet-compliant field controller. With three software-controlled high-current relays, the VLC-651R is well suited for unit ventilator and fan-coil applications, or any application that requires multi-speed fan or motor control. As a native BACnet controller, it integrates seamlessly with your BACnet system, communicating on a BACnet MS/TP LAN at up to 76.8 Kbps.

The VLC–651R supports the Alerton Microtouch™, as well as the Microset™ and Microset II intelligent wall sensors, which offer convenient data display, setpoint adjustment, and technician access to equipment setup parameters.

All VLC–651R control logic is programmed with Alerton's easy-to-learn graphical programming language, VisualLogic®. Programming and setup data is stored in non-volatile flash memory, ensuring stable and reliable operation.

The high-resolution 10-bit analog output is field-adjustable for thermistor/dry contact, 0–5 VDC/4–20 mA or 0–10 mA. High-resolution, 10-bit universal inputs are software configurable to accept various input types.

Technical Data

- **Power**   24 VAC @ 10 VA min., plus binary output loads (40 VA max). Utilizes a half-wave rectifier, which allows a single transformer to power multiple VLCs. One leg of 24 VAC connects to earth (panel) ground.

- **Inputs**   Six universal inputs with 10-bit resolution. Input 0 can be used for a BACtalk® Microset™ or Microset II.

- **Binary Outputs**

  Two hot-switched triac outputs, which have a common connection to the fused 24 VAC supply. Rated 24 VAC, 0.5 A.

  Three independently isolated, normally open relay outputs. Motor load rating: 120 VAC 1 HP (15 FLA); 240 VAC 2 HP (12 FLA); 277 VAC 3/4 HP (6.9 FLA). General purpose rating: 120 VAC @ 15 A; 240/277 VAC @ 10 A.

- **Analog Output**   Single 0–20 mA output with 10-bit resolution (4–20 mA is achieved in software) sourced by the VLC. 0–10 VDC is attained by wiring a 499 ohm 1/4W ±1% resistor across the 0–20 mA output terminals.

- **24 VDC Output**   Uncontrolled output to provide up to 100 mA of 24 VDC power for transducers or other devices.

- **Processor & Memory**   Motorola AZ-60 processor with on-board flash memory. Flash memory provides non-volatile program and data storage, and allows for encrypted updates to the program for future product enhancements.

- **Dimensions**   4.9" (125mm) H x 5.5" (140mm) W x 1.4" (36mm) D.

- **Terminations**   Removable header-type screw terminals accept 14–24 AWG wire.

- **Environmental**   0–158 deg. F (-17–70 deg. C). 0–95% RH, non-condensing.

- **Communications**   BACnet MS/TP LAN up to 76.8 Kbps.

- **BACnet Conformance**   ASC level device; tested and approved by BTL. See Protocol Implementation Conformance Statement (PICS).

  BACnet is a registered trademark of ASHRAE. ASHRAE does not endorse, approve or test products for compliance with ASHRAE standards. Compliance of listed products to requirements of ASHRAE Standard 135 is the responsibility of the BACnet Manufacturers Association (BMA). BTL is a registered trademark of the BMA.

- **Ratings**

  Listed Underwriters Laboratory for Open Energy Management Equipment (PAZX) under the UL Standard for Safety 916.

  Suitable for plenum mounting.

  EMC Directive 89/336/EEC (European CE Mark).

  FCC Part 15, Subpart J, Class A.

Ordering Information

Item number	Description
VLC-651R	BACtalk field controller for unit ventilator, fan-coil, and multi-speed motor applications

BACtalk® Control Modules

Features and highlights

- **Scalable**
  Combine BACtalk control modules (BCMs) to fulfill unique processing and network integration requirements.

- **Interoperable**
  BACnet-compliant modules support BACnet/IP, BACnet Ethernet, MS/TP, and PTP connections. Other modules provide BACnet integration to proprietary network protocols.

- **Reliable**
  BCM programming runs in RAM with all data periodically backed up to flash memory. A NiCad battery ensures current data is written to flash and retained even through extended power outages.

Alerton BACtalk control modules (BCMs) present a revolutionary approach to global control and network integration in BACnet building automation systems. You can combine up to seven integration and control modules in series with a single power supply module to precisely match capabilities to your application.

Select from BCMs that support BACnet network connections or function as gateways between BACnet and proprietary networks. BCMs can also host DDC, schedules, trend logs, and alarms.

Choose modules to fulfill current requirements and then add modules as your building automation system evolves. Simple DIN-rail mounting and a ribbon-cable connection to other BCMs make it easy. You can add a network or integration option in minutes, which gives you unprecedented flexibility to adapt quickly as your connectivity, integration, processing, and control requirements change.

For further flexibility in wide area network applications, each BCM that hosts a BACnet network connection also supports BACnet/IP and can operate as a BACnet Broadcast Management Device (BBMD).

BACtalk® Control Modules

Technical data

See individual module data sheets for further technical data.

- **Power**   Power supply module (BCM-PWS) requires 19–30 VAC @ 30 VA, 47–63 Hz.

- **Battery**   7.2V 700mA-h NiCAD battery in BCM-PWS provides power to back up current programming and values to flash memory during power outage.

- **Mounting**   35mm DIN rail.

- **Max. Dimensions**   6.5" (166mm) H x 1.5" (39mm) W x 5.0" (127mm) D

- **Environmental**   32-131 deg. F (0-55 deg. C). 0-95% RH, non condensing.

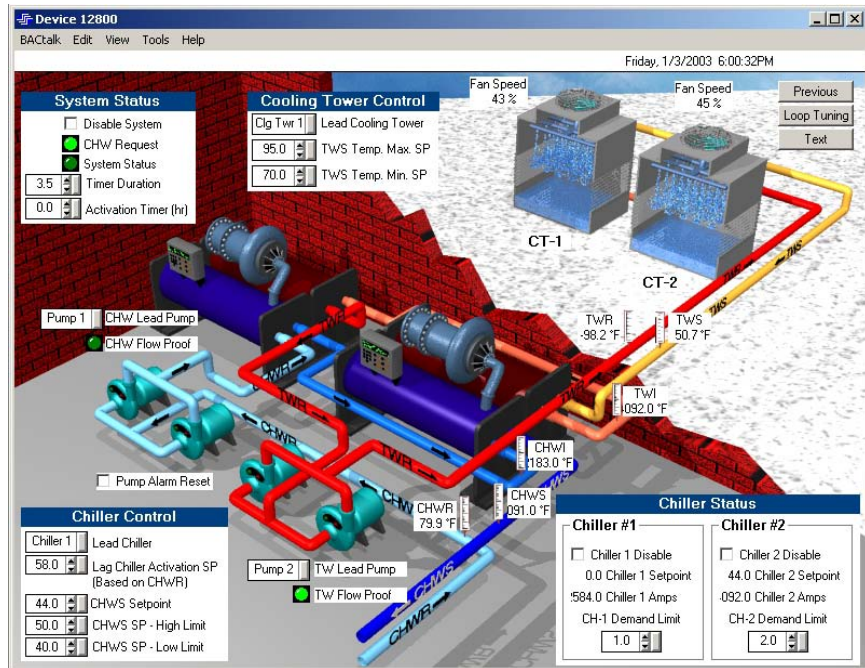## Typical network architecture
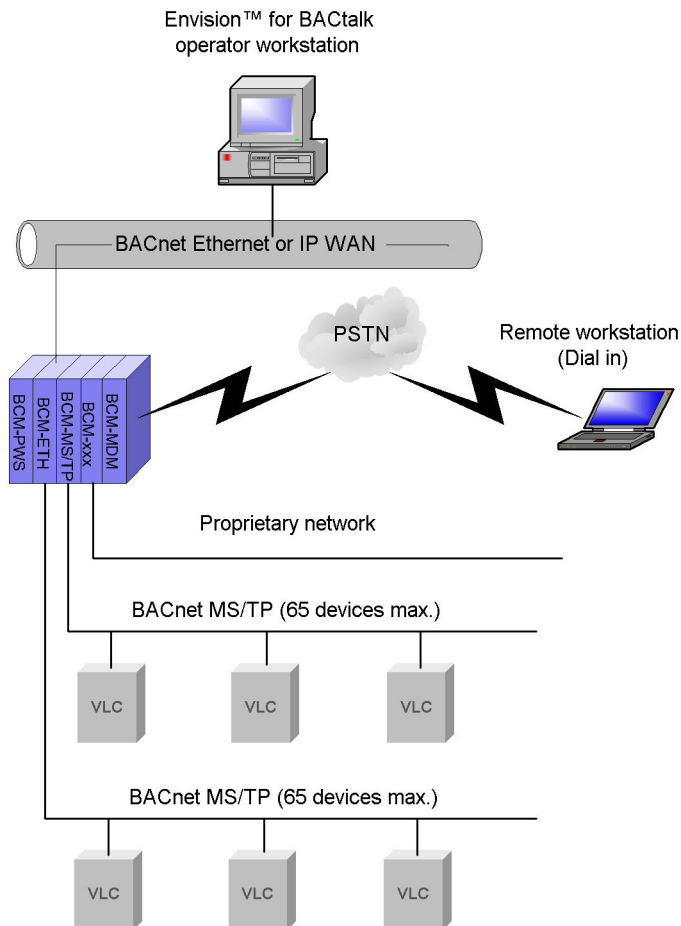
Ordering information

See individual module data sheets.

Envision™ for BACtalk®

Features

- **Powerful energy management**
  Optimum start ensures efficient equipment start times. Demand limiting offers sophisticated load optimization, and energy logging enables you to monitor progress and savings.

- **Tenant activity**
  Automatically detect and log after-hours tenant override activity, then generate tenant bills.

- **Custom graphics**
  Three-dimensional, full color, animated data displays can be customized to suit any requirement and easily updated for equipment additions, moves, and changes.

- **Networking and connectivity**
  Built-in Internet and wide area network (WAN) capabilities with BACnet/IP. Remote site and roaming access with modem and direct serial connections.

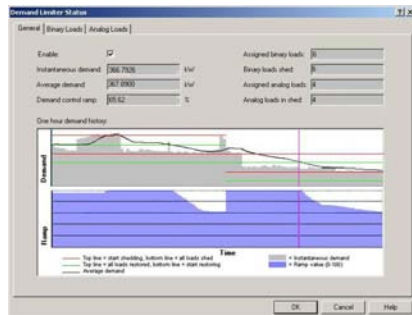
View demand limiting status in real time

Alerton® Envision for BACtalk is powerful operator workstation software for BACnet systems. Use it to manage and control building equipment from a personal computer with unprecedented flexibility and power. Envision for BACtalk communicates with BACnet-compliant devices over an Ethernet LAN or through point-to-point (PTP) serial or modem connections.

Three-dimensional animation and full-color graphics enable access to real-time data and energy management features with simple point-and-click control. As-built drawings, floor plans and specific graphics of HVAC equipment are customized for each site. Import images from CAD programs or virtually any graphics program.

In a multi-building campus, a BACnet Ethernet LAN or IP network can interconnect buildings. For large corporations with dispersed holdings, Envision for BACtalk supports BACnet/IP for building integration across the Internet and wide area networks (WANs). Envision for BACtalk can also connect to remote sites via modem or be installed on a portable computer for direct system access.

These flexible, integrated control options save countless hours and resources. Engineers and technicians can control any building from a single, central operator terminal, and have any number of options for roaming system access.

Features and highlights

- **Versatile**
  Occupant can view room and outside air temperatures, select fan speed and change room temperature setpoints in the BACtalk Microset's tenant control mode.

- **Energy Efficient**
  Occupants can select after-hours operation in 1/2 hour increments, which are logged at the BACtalk for Windows operator terminal for billing.

- **Flexible**
  A programmable field service mode allows maintenance personnel to monitor and adjust control parameters in the VLC from the Microset's field service mode.

- **Attractive**
  Modern styling enhances any interior, and functional design makes operation intuitive.
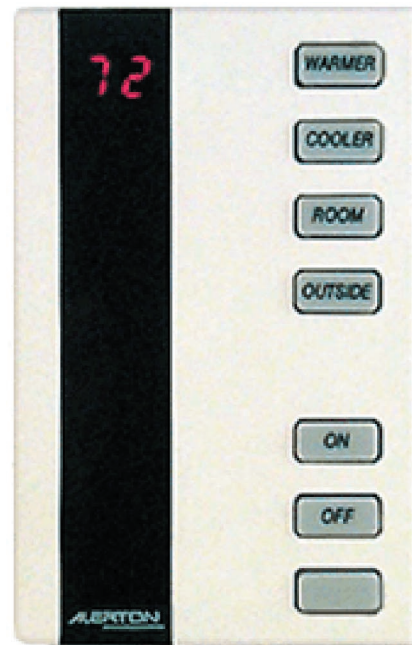
The Alerton® BACtalk® Microset™ is an intelligent zone temperature sensor with an optional humidity sensor. The Microset connects to Alerton's BACtalk VisualLogic® Controllers (VLCs) and serves as a tenant control center and a field service tool as well as a sensor.

An occupant can use the Microset to view room and outside air temperatures and change setpoints within established limits. The LED displays temperatures in Fahrenheit or Celsius, and multispeed push-buttons provide fan-speed control. An occupant can select after-hours operation in half-hour increments up to established limits, with after-hours usage recorded at the BACtalk for Windows operator terminal for billing.

The BACtalk Microset communicates with programmable VLCs, which directly connect to zone mechanical equipment. The VLC stores programmed control parameters and temperature settings, executing DDC to control equipment and maintain optimum environmental conditions.

The BACtalk Microset's programmable field service mode enables maintenance personnel to view and adjust control parameters in the field. This reduces maintenance and service time while providing facility personnel with increased flexibility.

The BACtalk Microset—together with Alerton's complete BACtalk line of BACnet-compliant routers, LSi Controllers, programmable VisualLogic controllers and operator terminal software—offers a total solution for automated building control.

MS/TP LAN Repeater
Master-Slave/Token-Passing LAN Repeater

Features

- **Simple**
  Designed specifically for BACnet-based MS/TP LANs.

- **Flexible**
  Star-wired bus topology expands MS/TP LAN architecture options.

- **Sensible**
  A cost-effective solution for supporting multiple controllers in expansive facilities.
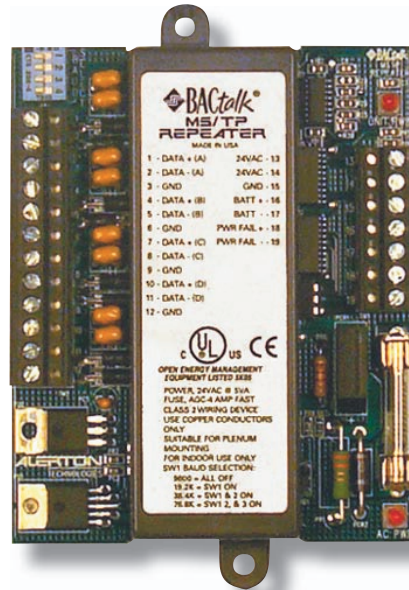
The Alerton® BACtalk® MS/TP LAN Repeater physically connects two or more BACnet MS/TP LAN segments, extending your network architecture options while maintaining optimum signal quality and controlling cost.

The BACtalk MS/TP LAN Repeater gives you flexibility in the design of your BACnet LAN layout. Star-wired topology reduces the installation cost by allowing multiple MS/TP segments to communicate with a single LAN System Integrator (LSi™).

The repeater has terminals for four LAN segments. It can appear anywhere on these segments, with no upstream/downstream requirements. You'll gain greater support for multiple VisualLogic® Controllers (VLCs™) and other manufacturers' BACnet-defined devices over an increased distance—between floors and multiple buildings—in expansive facilities.

An optional battery can connect to the BACtalk MS/TP LAN Repeater to maintain communications if 24 VAC supply power is interrupted. If supply power is lost and the backup battery is connected, the Power Fail output closes and can trigger an alarm if necessary.

The BACtalk MS/TP LAN Repeater uses the RS–485 signaling standard over twisted-pair wiring, which runs 4000 feet per segment when you use wire specified by Alerton. With its simple interface and communication rates of up to 76.8 Kbps, MS/TP can be implemented at low cost.

Together with Alerton's complete BACtalk line of powerful Windows-based operator's terminal software and programmable VisualLogic controllers, the BACtalk MS/TP LAN Repeater offers a total BACnet solution.