

INTRODUCTION

CGEE control systems have been designed to allow maximum flexibility to the owner, grower and the facility maintenance.

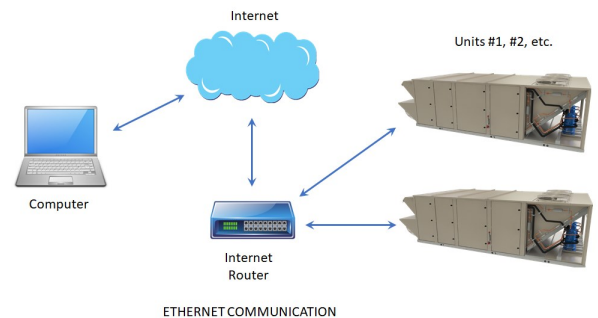
All major equipment is provided with **BACnet over IP** communication protocol. Also available is **BACnet MSTP** that allows for a BAS (Building Automation System) to communicate to each of the HVAC pieces of equipment to retrieve data such as systems setpoints, current temperatures and humidity levels, alerts and alarms, outdoor conditions, data logging and time of day schedules. BACnet was designed to be an open protocol between the controller, the peripherals like sensors and computer front end. CGEE BACnet controls have been designed to be and is **“Open Protocol”**. CGEE controls are Open Protocol and designed with Open Access to all equipment. It is not the intention of CGEE to prohibit the owner from hiring their own controls contractor to perform installation, service and/or to provide new code to have the controls system best the facilities need.



BACnet over IP

BACnet over Internet Protocol allows remote communication to each piece of equipment. Internet Protocol allows, through a computer, the factory and trained personnel to access the controls, set points, current sensors reading and alarms remotely from a computer. There is password protection to access the data for security purposes.

The user friendly screens and comprehensive tables provide data and set-points allowing a technician to help trouble shoot the unit. This internet connection also allows the factory to download changes in the software as needed and allows the factory to make application changes to the software as might be required by owner use. This can be done remotely. This remote access also allows the factory to participate in remote troubleshooting and diagnostics.



“BACnet over IP” Communication

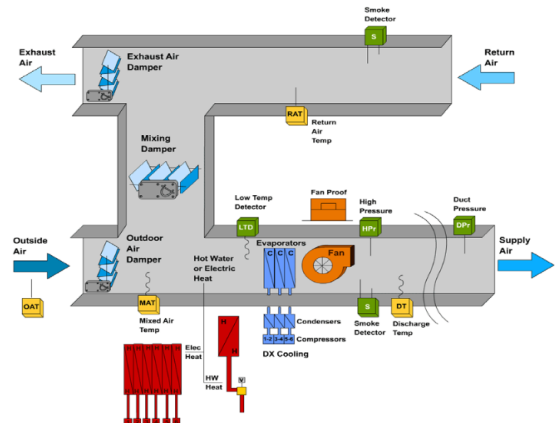
BACnet MSTP

BACnet MSTP is the BACnet connection that allows for a BAS computer front end to communicate to the HVAC equipment. This is a controller that is in addition to the BACnet IP (standard on most CGEE units).

There are several advantage and features of the BACnet MSTP controller and front end that the BACnet over IP does not offer.

- Custom Graphics
- Alerts & Alarms
- Remote Access
- Scheduling, Data Logging and Trending
- Integration of HVAC to building automation system
- Integration of lighting, landscape irrigation and other building functions.

For more information please contact the factory.



Sample: AHU Graphics

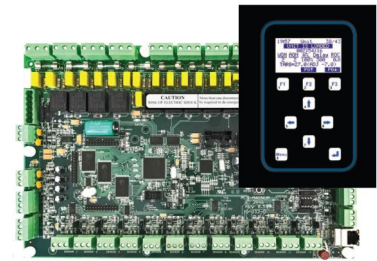
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The unit comes standard with the powerful **MAGNUM Microprocessor Controller** but as well offers several user options .

MAGNUM MICROPROCESSOR

The MAGNUM controller incorporates a powerful microprocessor controller with a local keypad and display for user interface. The expansion boards allow for up to 112 inputs and 108 outputs and communicates at 38,400 baud.

The RS-485 port allows for communication through BACnet IP and with the Building Management System (BAS). Standard on the unit controller is BACnet over IP, Modbus and Modbus IP. BACnet MSTP and LonWorks interface gateways are also available options through an added gateway card.



MAGNUM w/ Keypad Interface

REMOTE COLOR TOUCH SCREENS

Remote touch screen displays are available in two sizes: 10.1” and 15.0”. These may be mounted remote of the unit for remote viewing and monitoring unit status, setpoints , conditions and sensor inputs. Mounted outside a grow room or in a facility management room, the high resolutions (1280x1080) LCD display with LED backlighting allows ease of system monitoring and setpoint control.

For ease of installation, the display easily connects via ethernet cable to the RS485 port on the MAGNUM controller. If multiple ports are required, a RS485 extender module is available. Operating temperatures for the display are (-4°F to +149°F). An outdoor weather-proof version is available if required.



10.1” & 15.0” Remote Displays

FLASH MEMORY

The MAGNUM offers a 2GB industrial rated compact flash card option that mounts directly on to the main microprocessor controller. This option allows download and history storage. This is a great tool for troubleshooting and can save up to a years worth of data. This special flash card has extreme operating temperatures of (-40°F to +349°F).



2 GB Flash Card Option

ETHERNET HUB

The Ethernet hub allows for multiple RS485 connections to interface to the MAGNUM control board. With the use of the Hub, you may connect a Wi-Fi router, a Remote Touch Screen and offer BACnet IP access. Installation is simply and allows for multiple accessories and user friendly tools.



Ethernet Hub

Wi-Fi WIRELESS COMMUNICATION

If there is not a ethernet connection available to the unit, a wireless Wi-Fi Modem can be installed in the unit and access from your computer can be done through this Wi-Fi modem. A cross over cable is still required between the modem and the MAGNUM controller. Rabbit ear antennas are available as well as a booster antenna for extended range communication.



Wireless Modem

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Communications are a very integral part of facility management, monitoring and servicing. CGEE systems offer a variety of ways to communicate to the installed equipment.

BMS COMMUNICATION

The MAGNUM controller offers multiple way to communicate to the control and utilize the MCS Connect software that allows for easy setup and changing of temperature setpoints, control setpoints, fan speeds, damper position all the other operating criteria.

DIRECT LAPTOP CONNECT

You may directly connect from a computer to the MAGNUM control board via a ethernet cross over cable to the RSD485 port. Simply launch MCS Connect and discover your controller. The menus are easy to traverse through and all you points are available.

BACnet over IP CONNECT

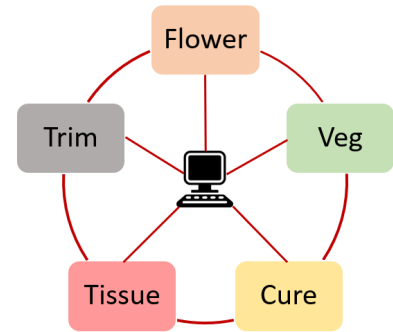
You may connect to the controller via a computer through the internet. If you are connected to a network, you must discover the network and then discover the controller. An ethernet switch is installed in the system to allow the a computer to communicate through the internet as seen in the connection diagram.

TOUCH SCREEN

The Touch Screen will use a ethernet cross over cable or utilize the ethernet switch to communicate.

BAS/BMS CONNECT

A BAS (Building Automation System) may access the controller via the BAS front end and the BMS Gateway. This gateway access card can be ordered BACnet MSTP or Lon Works compatible. Modbus and Modbus IP are built-in as standard communication protocol.



Central Communications

