Product overview

The VWG-40 and related wireless thermostats are targeted to retrofit applications where the addition of communicating field bus wiring within the building space is prohibitive. The Gateway and Communicating Thermostats with wireless field bus encourages the use of existing wiring utilized by existing electronic thermostat type controls.

The VWG-40-XX-1000 when utilized in conjunction with the VT7xxxXxxxxW series wireless thermostats will offer the integrator simple BACnet IP or BACnet MS/TP objects to integrate over standard building automation systems using familiar integration toolsets.

A maximum of 30 wireless thermostats can be wirelessly attached to a single VWG

The following additional documentation is available on www.viconics.com

- Gateway BACnet integration guide (VWG-40-IP & VWG-40-MSTP), is available in document ITG-VWG-40-BAC-Exx
- Information on VWG hardware installation is available in document LIT-VWG-40-INSTALL-Exx

Part available

Part number	Description
VWG-40-IP-1000	Viconics BACnet over IP wireless gateway. Includes: - Supports up to 30 wireless thermostats - Factory mounted wireless adapter - 24 Vac panel mounted power supply - Gateway mounted antenna
VWG-40-MSTP-1000	Viconics BACnet RS485 MS-TP wireless gateway. Includes: - Supports up to 30 wireless thermostats - Factory mounted wireless adapter - 24 Vac panel mounted power supply - Gateway mounted antenna
VWG-40-LON-1000 **(Upcoming)**	Viconics LON wireless gateway. Includes: - Supports up to 30 wireless thermostats - Factory mounted wireless adapter - 24 Vac panel mounted power supply - Gateway mounted antenna
VWG-APP	Interface software for VWG configuration and set-up. Operates under Windows XP ™. Uses a LAN crossover IP connection for initial set-up.
VWG-RA	Remote antenna for gateway when the gateway is installed inside a metal cabinet or when remote antennal mounting is required by physical installation
VWG-WA	Replacement antenna for gateway mounted antenna setup
VWG-PS-DC	24 Vac to 15 Vdc panel mounted power supply for VWG
VWG-PS-AC	120 Vac to 15 Vdc power supply for VWG with cord
VWG-BB	Replacement battery backup pack for the VWG

About Viconics Wireless Mesh Networks

The Viconics Wireless Gateway (VWG) and related wireless thermostat family (VT7xxxXxxxxW) networkable devices operate using ZigBee/IEEE 802.15.4 physical layer for communication.

General characteristics of the wireless physical communication layer are:

- Uses a wireless physical layer of 2.4GHz with a data rates of 250 kbps
- Yields high throughput and low latency
- Automatic multiple topologies configuration: star, peer-to-peer, mesh
- Fully handshake protocol for transfer reliability
- Range: 30 feet / 10M typical (up to 100 feet / 30 M based on environment)

IEEE 802.15.4 along with ZigBee's Network and Application Support Layer provide:

- Low cost installation deployment
- Ease of implementation
- Reliable data transfer
- Short range operation
- Very low power consumption
- Appropriate levels of security

The VWG acts as network coordinator device for the IEEE 802.15.4/ZigBee network used with the Viconics wireless thermostats.

Many network specific features of the IEEE 802.15.4 standard are not covered in detail in this paper. However, these are necessary for the efficient operation of a ZigBee network. These features of the network physical layer include receiver energy detection, link quality indication and clear channel assessment. Both contention-based and contention-free channel access methods are supported with a maximum packet size of 128 bytes, which includes a variable payload up to 104 bytes. Also employed are 64-bit IEEE and 16-bit short addressing, supporting over 65,000 nodes per network. All those properties of the physical layer are used and employed by the Viconics mesh network but are hidden to the installed / user for ease of configuration and commissioning of the network database.

A maximum of **30** networkable thermostats can be supported by a single VWG. Database creation and configuration is easily made using a Viconics software appliance that communicates with the VWG.