

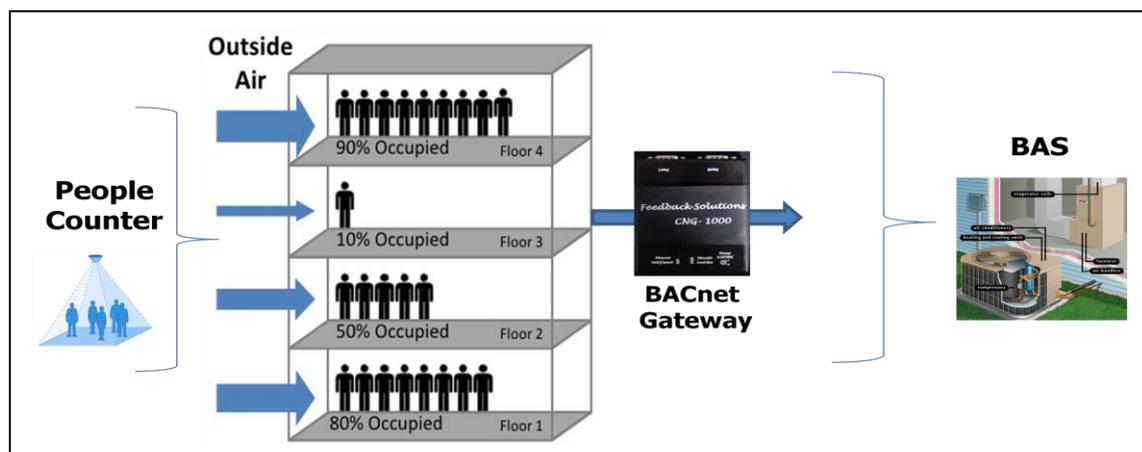
CNG-1000/CAS Counter Network Gateway

Energy Management being a key element towards sustainability, being able to find solutions that help you to contribute towards making your buildings more energy efficient is always welcome. While you implement advanced building automation systems that help you to react to changes in environments within a building or room, there is always scope for fine tuning a system to help save **more on your energy consumption**.

Our '**Counter Network Gateway**' is a **BACnet** device that enables seamless integration of your **occupancy data**, from our '**People Counter**', with your '**Building Automation System**' (**BAS**), to trigger controls on your building **Heating, Ventilation and Air conditioning** (HVAC) system.

The '**Counter Network Gateway**' is designed to deliver **real-time** count data and make it available on **BACnet IP** or **Modbus TCP**. By default the system calculates occupancy and makes it available to any BAS system on BACnet so that they can further use it to trigger set points to control ventilation in any building. Alternatively, if you desire we can deliver the '**IN**' and '**OUT**' counts only so that you can use it to define or design your own application parameters.

Using our accurate IP based '**Thermal Imaging Sensors**', as the source for capturing the flow of people into a building the CNG-1000 Gateway converts '**Occupancy Data**' and makes it available in real-time on BACnet so that it can be discovered by any BAS system.



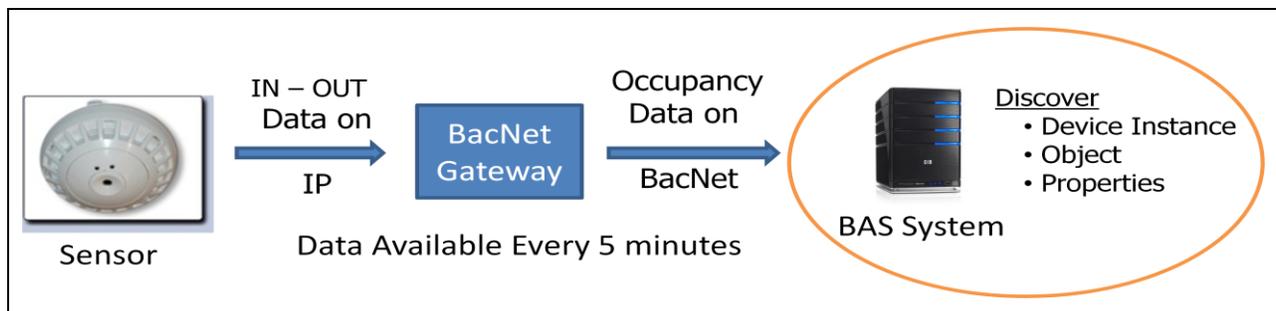
System Components:

- 1. People Counter:** Thermal Sensors are used to count the number of people entering and exiting a building.
- 2. CNG-1000 Gateway:** The gateway reads data from the sensors, calculates occupancy and makes it available on BACnet IP. These values are 'served' as BACnet IP data.
- 3. BAS System:** Industry standard BAS system that will read the data values from the CNG 1000 gateway for further use.

4. **Networking Requirement:** The sensors, gateway and BAS system will reside on the same local area network subnet and be able to communicate with each other. .

People Counter: Our thermal imaging people counting sensor is used to get the data in real-time. The sensor is used to capture the number of people entering/exiting through an entrance. The sensors are mounted overhead, above the entrance, and count in both directions. Accuracy >95%.

BACnet Server Gateway: The BACnet gateway converts data from the people counters and delivers accurate Occupancy data values to the BAS system in defined time intervals. The system enables any BAS system to trigger set points to control their heating, ventilation and air conditioning requirements (HVAC) based on real-time occupancy.



The CNG-1000 BACnet gateway can be discovered by your BACnet Client on the network. The CNG-1000 is normally configured as a BACnet **'Server'** hence your BACnet **'Client'** can request data from it. On discovery the CNG-1000 will be visible as a BACnet Device named 'People Counter'. The data will be structured as Objects and Properties.

For instance, the total 'In Count' will be Object 'Analog Input 1 or AI (1)' and the property of interest will be the 'Present Value of AI (1)'. Similarly the total 'Out Count' will be 'Analog Input 2 or AI (2)' and the 'Occupancy Value' will be object 'Analog Input 3 or AI (3)

The Occupancy value indicates the occupancy in the building and the BACnet Client can poll this value every 5 minutes. This value can be further used to trigger controls and set points on your HVAC system, which is in your control.

What does it mean to you?

1. **Instant visible savings on your energy consumption and bills** - Allows you to adapt to changes in environment instantly - trigger set-points based on actual occupancy instead of assumed occupancy. Control lights based on occupancy.
2. **Avoid time lags** - No delay in making the occupancy data available, as its in real-time.
3. **Accurate data** - A quick ROI, recover your investment in few months
4. **Backend Integration** - Integrate with your BAS system to generate your own reports

Additional Functionalities:

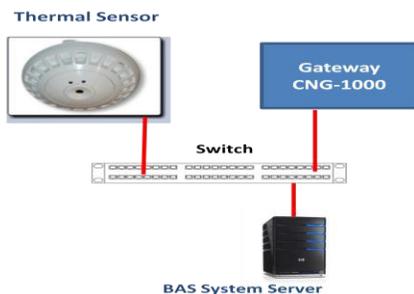
In addition to the above the Gateway comes with an embedded Web Server and high-end 'live dashboards' that utilize tools from DGLux. The system allows users to look at their live count data on a graphical display and can be programmed to trigger alerts based on real-time data.

BACnet Gateway Details

- Collect and log data from devices using XML or HTTP.
- View Log and current data using the onboard web server.
- Serves data to other applications over BACnet IP
- Upload log files for later review.
- Simple and easy to use and configure.

Description

Connects to XML/HTTP enabled devices to read data. The data and transactions are logged. The log files are available and can be transferred to other computers. Current data can be monitored by remote systems on BACnet IP. Of course, this data is available using an Internet Browser such as Internet Explorer or Google Chrome. Connection parameters, device parameters and data parameters are configurable.



Logging

Log records of data read and response transactions are maintained in the file system. Log record with time stamps of data returned by devices are maintained in the file system. These files are (zipped) human readable data. Log files can be

uploaded to a remote PC using HTTP. When file space runs low, the data client overwrites older files.

Data Serving

The current value of any/all data objects reads from the XML/HTTP enabled devices can be monitored remotely and these values are served on BACnet IP.

BACnet IP

Connect to multiple BACnetIP devices. IP and Address are configurable. Connection port is configurable. Data objects, types and properties are configurable.

Device Specifications

Environmental Parameters

Operating Temperature: 0 to 70 C

Humidity: 5% to 95% (non-condensing)

Dimensions

4.2" x 3.25" x 1"

Power Supply

Power: 5-24VDC

Power Adapter: 60W, VAC 100~240V adapter

Compliance

CE, FCC UL and ULc approved

Interfaces

RoHS, Lead-Free 1xRS232 (Debug Port)

1xMicros SD Card

1xRS485 Port

1x 10/100/1000 RJ45 Network

Memory/Operation

2MBytes flash memory, 8MBytes of SDRAM

LEDs: Link, Speed/Data, Power

Case

Aluminum with textured paint

People Counting Technology

The IRC3000 series people counter is the latest model in the thermal array based people counter family, now with IP connectivity. The unit functions optically ‘seeing’ the heat emitted by people passing underneath as Infra-Red radiation, collected through a germanium lens with a 60° field



of view.

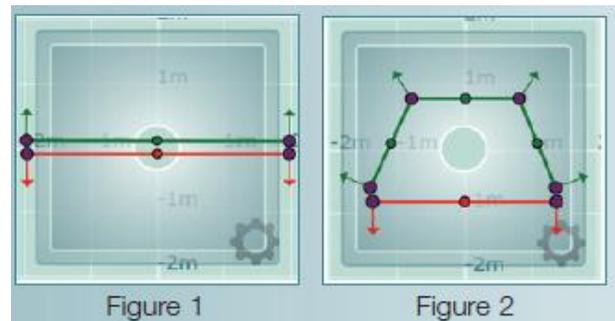
The sensor also incorporates an in-built data logger and being IP based allows direct connection of the counter to your office network

infrastructure.

The sensor is installed in the ceiling and looks downward so that it covers a square area beneath the sensor. The sensor counts as people cross a virtual line(s) within its field of view. Delivering a high accuracy these sensors are extremely stable and consistent in its performance.

The key benefits include:

- Operation independent of ambient light
User-Definable Count Lines & functionality
- Wide Opening Capability up to 8 units.
- Built in data logging
- Direct IP Connectivity
- Accuracy > 95%



Mounting Height	Mounting Height Range (m)	Width of Field of View (m)
60° field of View	2.5m - 5m	2.5m - 5m

SPECIFICATION

Coverage Pattern:

The mounting height determines the maximum coverage area available, as shown below.

Detection Speed Range: 0.5ms-1 – 3ms-1

Temperature Sensitivity: < 2.0K

Count Lines:

There are two count lines, allowing counting in both directions (e.g. ‘in’ and ‘out’). The lines may be user- configured in a number of ways:

1. User Configurable.

The count lines are user configured by a drag and drop mechanism. Both line position and shape may be modified. Figure 1 shows a standard line

position, whilst Figure 2 shows a user configured alternative.

2. Count Direction.

People are counted when they cross the count lines. Different count modes' are available (see below). The direction of line crossing which increments the count is user selectable and is indicated by the arrows on the counting lines shown in Figures. 1 & 2 above.

3. Count Functionality.

Various count modes are available, including:

- Count increment when person crosses line
- Count increment when person leaves the field of view
- Ignore or register U-turns
- Count every line crossing or only the first line crossing

4. Placement Restrictions.

The user is free to place and adjust the count lines, providing that a certain amount of initialisation space is allowed between the edge of the counters field of view and the count line. This is dependent on the height of the counter and other factors.

Counter System Implementations

- Single counter connected via IP
- A group of counters installed together to give a single count output, controlled via an IP master counter

Configuration:

Configuration of the counter is carried out either by IP connection (which may be local or remote) or by a plug-in configuration cable connected to a socket on the counter base.

The IP connection when used with an additional third party WiFi adapter and a WiFi enabled laptop will also allow wireless configuration.

Power Supply Requirements:

Supply voltage: 10-28V

Ripple: <2Vpk-pk within supply range

Typical Supply Current: 24V 12V / IP 80mA 160mA

A power injector accessory is available for powering over CAT5 cable if required

IP Interface Specification:

Standard RJ45 sockets are provided on the rear of the unit for structured cable (CAT5) connection. Power can be supplied over the CAT5 with the Irisys Power Injector accessory IWC3060 or directly to the power terminals on the unit base. Power over the Ethernet (PoE) is not supported.

Mechanical:

Housing: White ABS

Dimensions: 111mm diameter x 70mm deep

Weight: 0.2kg

Mounting: Four fixing holes in base. **The front** part of the unit is removable from the base in a 'twist and pull' action.

Limitations to Use: Users are requested to observe to observe the following guidelines:

Safety Critical Use: The IRC3000 series is not intended for use in any safety critical or personal safety application.

Environment:

The counters are intended for use in indoor environments, free from rapid changes in temperature or humidity. For more severe environments the outdoor version should be used.

Operating Temperature: 0°C to + 40°C (Non-condensing)

Storage Temperature: -10°C to + 50°C

About Us:

The **CNG-1000/CAS Gateway** is a **Joint-Venture** development between **Chipkin Automation Systems, Vancouver**, a specialist engineering firm providing services to '**Building Automation**' users in North America, and **Feedback Solutions, Toronto**, a **People Counting** company offering solutions built round 'people-counting' technology to deliver value to customers.

With Energy Management being a concern for all property management companies, Chipkin Automation & Feedback Solutions have jointly developed the '**Counter Network Gateway**' that enables communication between two diverse technology platform and facilitates instant savings on energy consumption.