

IRC 1004

INDOOR PEOPLE COUNTER

The Irisys IRC 1004 is a novel thermal array based people counter family applicable to a wide variety of counting applications:

- Retail, Shopping Malls & Shops
- Leisure, Hotels & Casinos
- Museum & Gallery
- Transportation
- Smart Buildings

The key benefits include:

- Operation independent of ambient light
- Minimal set up
- User-Definable Count Lines
- Bus Connectivity up to 30 units
- Wide Opening Capability up to 8 units

Description of the IRC 1004

The IRC 1004 is a people counting device with the imaging optics, sensor, signal processing and interfacing electronics all contained within a moulded plastic housing. The unit is used in a downward looking manner, with an unhindered view of the target area. The unit functions optically, seeing the heat emitted by people passing underneath as Infra-Red radiation, through a germanium lens with a 60° field of view. The sensing area is a square on the floor whose width is approximately equal to the mounting height; at 3.5m the unit 'sees' a 3.5 x 3.5m square on the floor. Mounting height ranges from 2.5-4.5m can be covered with the standard lens, and a 40° field of view lens, offering increased mounting heights, is available as a factory fitted option.

The units may be used as single counting nodes, linked into networks of up to 30 individual units or configured to span a wide opening. In the wide opening mode up to 8 units are linked to span the wide opening and will appear to the user system as a single counter unit with a wide 'footprint'.

Two styles of output are provided which allow connectivity to the majority of user input/output requirements. The simplest data output is by relay; there are two relays within the unit that are software configurable to provide count data from the system. The relays allow stand-alone systems to be implemented by connecting the relays to a simple digital counter, for example. A data bus output is also provided; this is based on the CAN protocol (Controller Area Network) which is a two-wire, high-performance multi-drop bus standard with high noise immunity and the ability to drive over many hundreds of metres.

The setup tool is a laptop PC running windows XP. This allows set up by a lone operator and is also discreet and portable. The set-up tool is used to configure the counting lines which may be configured uniquely to the requirements of the scene, as described overleaf.

The Product Family

- IRC 1004-0 Basic counter with relay interface
- IRC 1004-1 Basic counter with CAN bus interface
- IRC 1004-2 Master counter with relay interface
- IRC 1004-3 Master counter with CAN interface



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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

Mounting Height Options	Mounting Height Range (m)	Width of Field of View (m)
60° Field of View IRC1004	2.5 - 4.5	2.25 - 4.25
40° Field of View	4.0 - 7.0	2.4 - 4.4

Count Lines:

There are two count lines, which may be user- configured in a number of ways:

1. Preset.

There are 8 preset line positions (above) which appear in the scene as shown in Fig. 1.



Fig 1. Preset Lines.

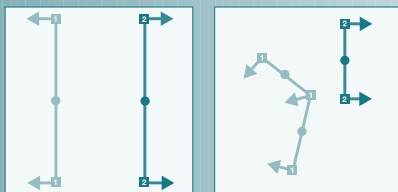


Fig 2. User Configured Lines

2. User Configurable.

The count lines may be user configured by drag and drop movement. Both line position and shape may be user configured. Fig. 2 shows a user configured line combination.

3. Count Direction.

The count increments when a target crosses the line, and exits the scene. The direction of line crossing which increments the count is user selectable, is shown by the arrows on the lines in Figs. 1 & 2 above.

4. Placement Restrictions.

The user is free to place and adjust the count lines, with two important restrictions: the line shape must not be closed, and a certain initialisation space must be allowed between the edge of the scene and the count line. This is usually required to be three pixels, or 3/16 x the width of the scene on the floor.

Counter System Implementations:

- Single counter connected to a host system by either relay contacts or a serial CAN bus
- A group of counters individually connected to a host via relay contacts
- A group of counters in a line giving a single count output, controlled by a master counter
- A number of individual counters and master counters connected together on a CAN bus to the host system

Configuration:

Configuration of the counter is carried out using a plug-on RS232 interface module (IWC2044) connected to an RS232 port on a PC. Once configured the interface module is removed.

Alternatively a permanently connected interface module (IWC2023) is available, intended to be left in the ceiling cavity with a serial lead connected to a convenient location at ground level.

Communication:

Communications with the counter:

- A simple relay connection option is available on all counters (two relays, one for each direction) that pulse as the count is incremented. Relay function can be software configured.
- For counters connected by CAN bus, a CAN to RS232 conversion module (IWC2020) is used to convert the CAN protocol to standard RS232 serial data.

Power Supply Requirements:

Supply voltage: 10-28VDC
 Ripple: ≤ 2Vpk-pk within supply voltage range
 Typical Supply Current: 70mA at 12V
 60mA at 24V

Mechanical:

Housing: White ABS
 Dimensions: 111mm diameter x 50mm deep
 Weight: 0.2kg
 Mounting: Four fixing holes in base

The front part of the unit is removable from the base by a twist and push, bayonet style action. This allows removal and replacement by extendable pole.

Limitations to Use:

Users are requested to observe the following guidelines:

- Safety Critical use: The IRC 1004 is not intended for use in any safety critical or personal safety application.
- Occupancy: i.e. calculation of the number of people within a given area should be approached with caution*.

*See Irisys publication IPU 40028 "People Counter Application Notes" for more details on these effects.

Environment:

The counters are intended for use in indoor environments, free from rapid changes in temperature or humidity. For more severe environments the IRC 1003 should be used.

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

Storage Temperature: -10° to +50°C

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