IRC1004

Indoor People Counter

The IRISYS IRC1004 is a novel thermal array based people counter family applicable to a wide variety of **counting applications**:

- Retail, Shopping Malls & Shops
- Leisure, Hotels & Casinos
- Surveillance, Security & Safety
- Transportation & On-Vehicle
- 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

IRC1004 People Counter

Description of the IRC 1004

The IRC1004 is a people counting device with the imaging optics, sensor, signal processing and interfacing electronics all contained within a moulded plastic housing. The unit normally 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 3.5x3.5m 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 set-up tool is a Compaq iPAQ palm-top PC. 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

- IRC1004/0 Basic counter with relay interface
- IRC1004/1 Basic counter with CAN bus interface
- IRC1004/2 Master counter with relay interface
- IRC1004/3 Master counter with CAN interface

ISO 9001 REGISTERED FIRM

World Leaders in ABD Array-Based Detectors

SPECIFICATION

COVERAGE PATTERN

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

Mounting Height (m)	**Footprint** (mxm)	**Count Area** (mxm)
60° lens		
2.5	2.8 x 2.8	2.5x2.5
3.0	3.4 x 3.4	3.1x3.1
3.5	4.0 x 4.0	3.7x3.7
4.0	4.5x4.5	4.2x4.2
5.0	5.7x5.7	5.4x5.4

Detection speed range: $0.5ms^{-1} – 3ms^{-1}$

Temperature sensitivity: < 2.0K

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.

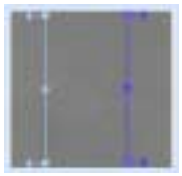

Fig 1. Preset Lines.

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 and is user selectable, is shown by the arrows on the lines in Figs. 1 & 2 above.

4. Count Line Placement Restrictions

The user is free to place and adjust the count line, 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 of the counter can be carried out either before or after installation:

- Before installation, an optional RS 232 set-up cable (IWC2023) can be used to connect to a standard RS 232 port on a PC or PDA.
- For installed counters, a plug-on RS 232 interface module (IWC2022) can be used to connect to an RS 232 port on a PC or PDA

Configuration software is provided with the counter.

COMMUNICATION

Communications with the counter:

- For counters connected by the CAN bus, serial communications is supported via the CAN bus to a CAN compatible host system.
- An optional CAN to RS232 conversion module (IWC2020) can be used to convert the CAN protocol to standard RS232.
- 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.

POWER SUPPLY REQUIREMENTS

Supply voltage:	10-28VDC
Ripple:	2Vpk-pk within the 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:	Two 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.

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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