



# **PIRIF-485/2**

*Interface for Setup and Control of  
Eagle PIR Detectors*

*Installation, Setup and  
User Manual*



## Introduction

The **PIRIF-485/2** is a PC hardware- and software interface for the *Eagle Passive Infrared Detectors* (PIRs), Series 18, 45 and 100.

With the PIRIF-485/2, all settings related to one, or multiple PIR's connected onto a common RS-485 bus, may be adjusted remotely. Furthermore, it is possible to study the signal picked up by the detectors sensor(s), the status of the detector (in alarm or not) and thereby determine if the current settings, e.g. the sensitivity, are properly adjusted.

### Compatibility

The *PIRIF-485/2* is compatible with the following Eagle PIR Detectors:

- Eagle PIR-18: Wide angled detection field, range 1-18 m.
- Eagle PIR-45: Narrow, curtain shaped detection field, range 1-45 m.
- Eagle PIR-45H: As above, with heater and silicone glass front window.
- Eagle PIR-45D: Dual curtain shaped field 1-45 meters, with directional detection.
- Eagle PIR-100: Narrow, curtain shaped detection field, range 8-100 m.
- Eagle PIR-100H: As above, with heater and silicone glass front window.

### Approvals

All electronic equipment can emit, or be sensitive to, induced electromagnetic noise, which can be conducted via the connected wires or transmitted as electromagnetic fields.

Electromagnetic noise can cause malfunction or damage to the equipment.

The PIRIF-485/2 is **CE**-certified and approved in accordance with the relevant EU-directives.

## Installation

Please check that all the items listed below are present:

- A RS-232/RS-485 converter box, which is the hardware interface between the PC and the PIR-detectors.
- A floppy disk with the PIR software.
- A serial cable, 2 meters, with 9-pin DSUB connectors male/female.

### Software installation

The PC must fulfill the below requirements:

- Operating system: Windows 9x, 2000 or XP
- Available HDD-space: Min. 10 MB
- CPU-speed: Min. 400 MHz.
- COM-port: 1

To install the program, run the file "PIRxxx.exe" ("xxx" denotes the version; e.g. 024 for V2.4) located on the floppy disk and follow the on-screen instructions.

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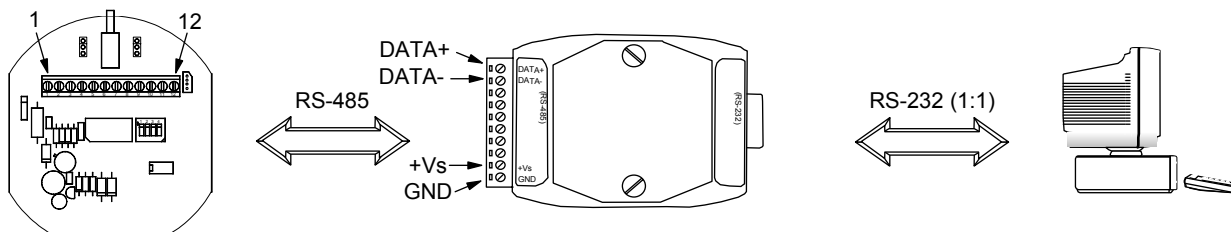
Note: A Desktop shortcut to the program is not made automatically during the installation. If required, it must be made manually afterwards.

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## Hardware Installation

Use the enclosed cable to interconnect the PC and the PIR-interface box. If a longer cable is required, the pin-connections can be found below. Maximum cable length is 15 meters.

Connect the PIR-detector to the interface box as shown below. Power supply to the interface box may be sourced from the PIR-detector or a separate power supply must be used (not included). Power requirements for the interface box is 10,5-28 VDC/2,2 W.



| PIR-18/45/100 | PIRIF-485/2 | Function    |
|---------------|-------------|-------------|
| Terminal 11   | Data +      | RS-485 A/+  |
| Terminal 12   | Data -      | RS-485 B/-  |
| Terminal 1    | +Vs         | 10,5-28 VDC |
| Terminal 2    | GND         | Ground      |

| PIRIF-485/2 | COM-port | Function     |
|-------------|----------|--------------|
| Pin 2       | Pin 2    | RS-232 Tx↔Rx |
| Pin 3       | Pin 3    | RS-232 Rx↔Tx |
| Pin 5       | Pin 5    | GND          |

Maximum cable length from the interface box to the detector is 1200 meters. Cable should be twisted pair type, e.g. ordinary telephone cable.

Note: If sourcing power to the interface box from the PIR-detector and the cable run between the interface box and the detector is longer than 10-20 meter, make sure the voltage is within the above specified range, at the interface end with the interface box connected.

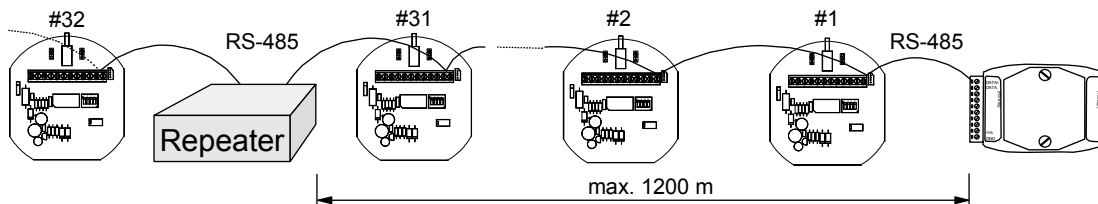
## Connecting multiple detectors

It is possible to connect multiple PIR detectors to the interface in a bus structure as shown below.

The software allows for addressing up to 254 units, but when controlling multiple units a RS-485 repeater will in the cases mentioned below be needed:

- When the total cable length between the interface and the last detector exceeds 1200 meters.
- When more than 31 detectors are connected onto the RS-485 bus.

The repeater must be compatible with 2-wire RS-485, half-duplex comms, 9600 baud.



**WARNING: Do not connect more than one detector at a time, since all detectors factory default are set to the same address. Therefore, connect the detectors one by one and assign an unique address with the software before connecting the next detector.**

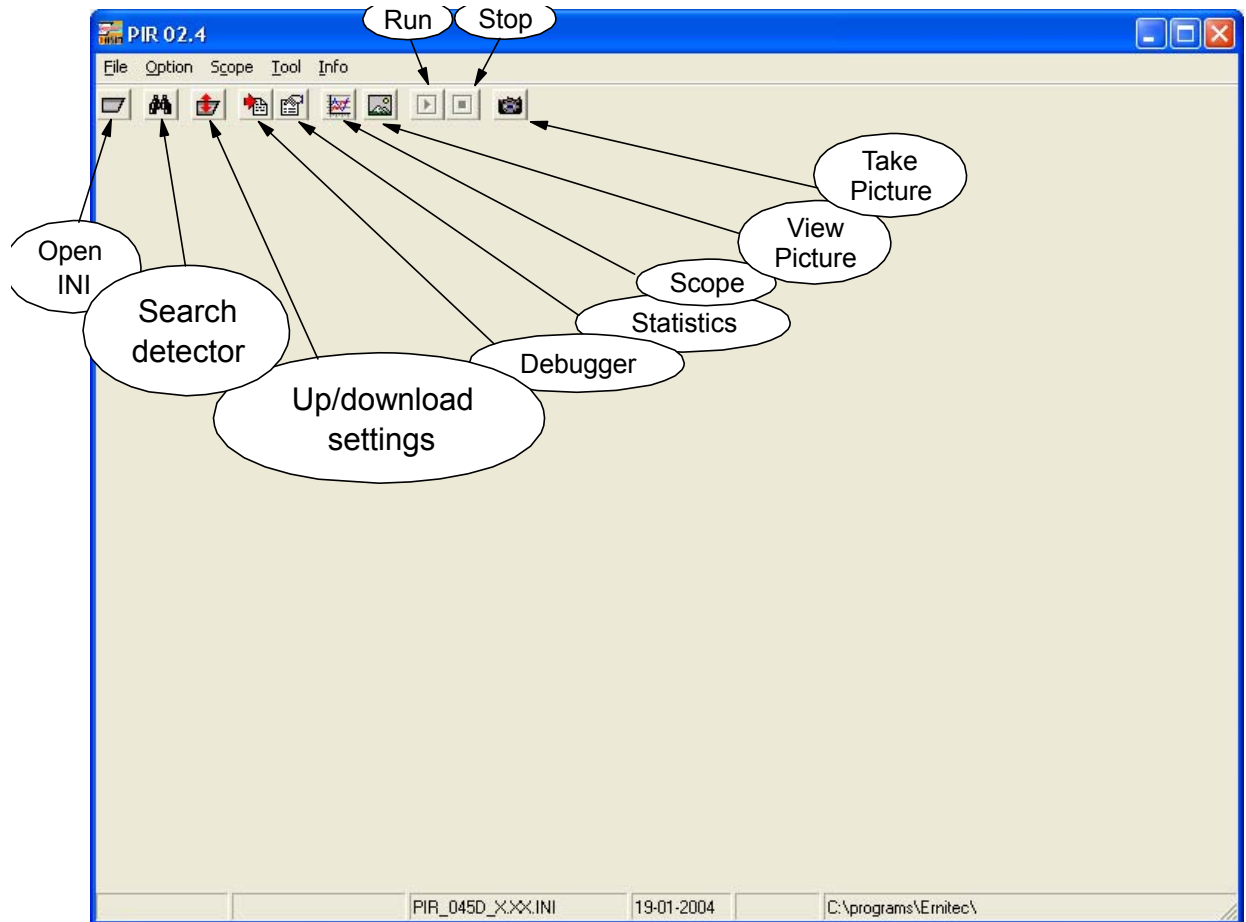
## Software User Guide

To start the software, select:

**Start ⇒ Programs ⇒ Ernitec-SW ⇒ pirxyz.exe**

where xyz denotes the version of the program; e.g. 024 for V.2.4

When the program has started, the below view is shown:



The available options are explained below.

### “Open INI-file”

Note: This function should not be used.

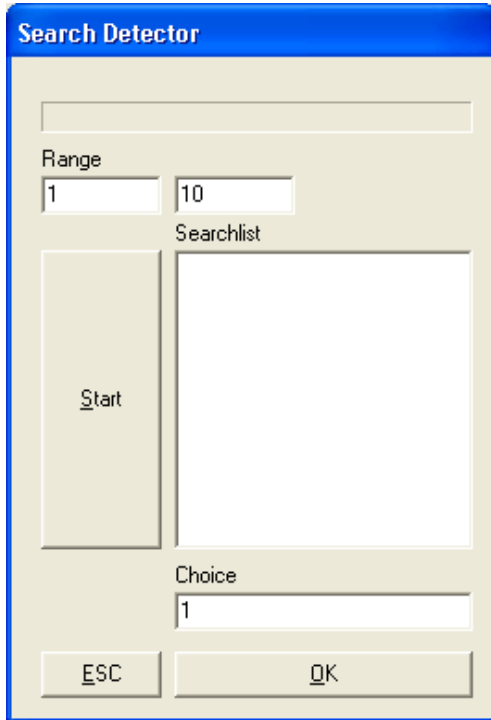
For manual selection of the detector type. Since the detector type is identified automatically when communication is established to the unit, this function is required only with very old detectors without the auto-type selection feature.

## “Search Detector”

When pressing the button the interface will look for any detector(s) connected and determine the type(s).

This is normally the first function to select.

The below menu is displayed:



- 1) Specify the address *Range* within the interface should look for detectors. The wider range, the longer time it will take. Max. address is 254; but all detectors are factory default set to address 1.
- 2) Press the *Start* button.
- 3) From the *Searchlist* showing the detectors found, select the appropriate detector.
- 4) Press *OK*.

## “Scope”

Once a detector has been selected as described above, the *Scope* function is automatically started, showing the signal picked up by the detector and the status of the detector.

- The **Green** line(s) represents the signal picked up by the sensor. Some detector types contain multiple sensors, each represented with a green line.
- The **Light blue** line(s) show the alarm threshold level. If the ATD function is enabled; i.e. ON, the alarm threshold level is adjusted in accordance with the background noise.
- The **Purple** line shows the detector status; i.e. whether the unit is in alarm mode or not.
- The **Yellow** lines are present only if the detector includes multiple sensors. They show the status of each sensor, i.e. whether the sensor is in alarm mode or not. Depending on the setup of the unit, the detector will go in alarm mode when one or multiple sensors are in alarm.

The *Scope* view may be frozen using the *Stop* button and re-started again with the *Run*.

It is also possible to freeze the view using the *Trigger* function: Position the cursor at the desired signal level and press the left mouse button to set the trigger. Press **F10** to reset all triggers.

Furthermore, the settings programmed by the software or set by the DIP-switches directly on the unit are displayed as well.

A few typical scope views are shown below.

## PIR-100 Scope View



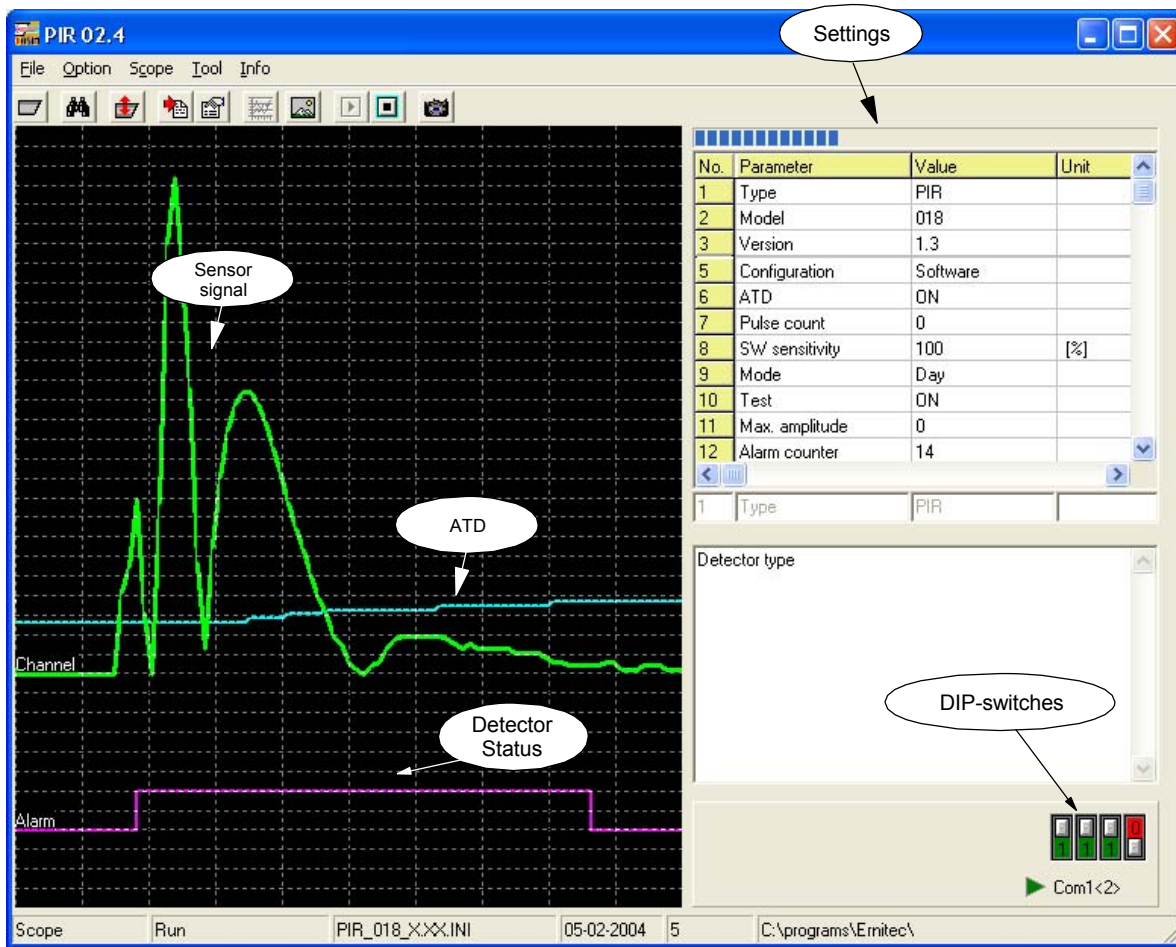
The **Eagle PIR-100** has three sensors, covering the *Short*, *Medium* and *Long* range respectively.

In the above scope view, the detector is in alarm mode for a period as shown on the *Detector Status* line (the lowest curve) as a result of both the *Long* range and the *Medium* range sensor status are in alarm mode.

In the *Settings* section all the complete setup can be examined. Use the horizontal and vertical scroll-bars to view the remaining parameters.

Refer to the *Installation Instruction* for the **Eagle PIR-100** for more details on each setting.

## PIR-18 Scope View



The **Eagle PIR-18** is a wide-angled, single sensor detector.

Note, how the ATD-level (Adaptive Threshold Determination) is slightly raised as a result of the strong signal picked up by the sensor. After a while with lower signal amplitude, the ATD-level is lowered again.

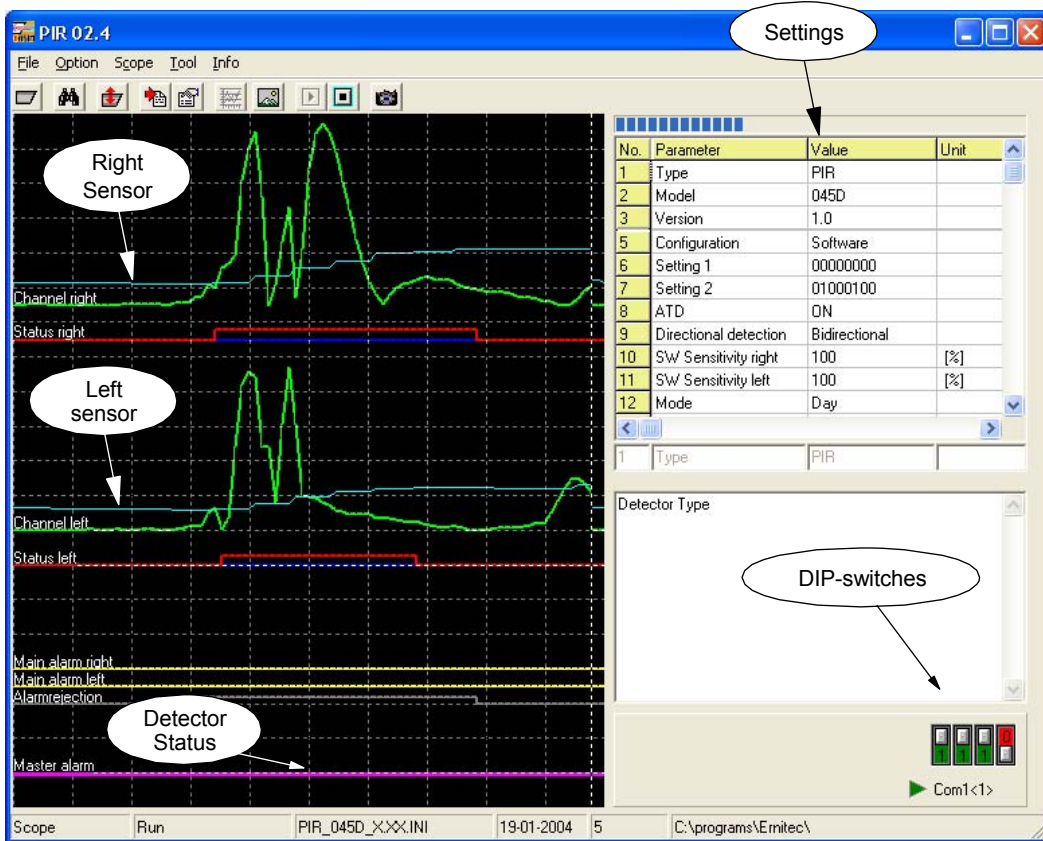
Refer to the *Installation Instruction* for the **Eagle PIR-18** for more details on each setting.

## PIR-45 Scope View

The **Eagle PIR-45** is a single sensor detector with a narrow, curtain shaped detection field. The Scope view is not shown here, but is quite similar to the one shown for the PIR-18.



## PIR-45D Scope View



The Eagle PIR-45D is a Dual sensor unit, with possible direction detection; i.e. from left to right or right to left only.

### “Up-/Download Settings”

When having the intention to control multiple detectors, the first thing to do, is to assign an unique address to the unit just connected.

Since the setup options are individual for each detector type they have individual setup windows. Some examples are shown below.

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Note: To revert to factory settings (except the address), press **Ctrl + F** and download **Ctrl + D**.

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Refer to the *Installation Instruction* for the actual detector type for more details on each setting.

A set of settings may be saved into a file for later use with the **Ctrl + S** function. To open the file, press **Ctrl + O**.

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**WARNING: Do not connect multiple detectors at the same time since they all are factory set to address 1. Connect the detectors one by one and make sure to assign an unique address to each detector prior to connecting the next detector.**

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## Setup PIR-18

Setting

Choice: 2> PIR 018 1.3

Address: 2

Configuration: Software

SW ATD: ON

SW sensitivity [%]: 100

SW pulse count: 0

## Setup PIR-100

Setting

Choice: 1> PIR 100 1.2

Address: 1

Configuration: Software

Channel L: ON

Channel M: ON

Channel S: ON

SW ATD: ON

SW Mounting height: High

SW range: max

SW sensitivity: [ ]

## Setup PIR-45D

Setting

Choice: 1> PIR 045D 1.0

Address: 1

Configuration: Software

Channel left: ON

Channel right: ON

SW Sensitivity left [%]: 110

SW Sensitivity right [%]: 100

SW Left-right detection: OFF

SW Right-left detection: OFF

### **“Take Picture” and “View Picture”**

It is possible to save a screen-shot into a file and later review them.

The file format is bit-map (.BMP); the files are placed in the sub-folder BMP.

The file names are constructed in the following way:

**aa\_bbb-yymmdd\_nnn.bmp**

where

- aa\_bbb: Detector type
- yymmdd: Date of file (yy=year, mm=month, dd=day)
- nnn: 1...999 (serial number)

It is possible to delete the actual file by pressing **Alt + D**.

### **“Statistics”**

A Log-function; will display the events associated with the actual detector.

### **“Debugger”**

For internal use.

Will display the serial communication to/from the detector.

## **General advice**

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**Before starting walk-test and adjust the settings, please allow the detector to stabilise and adjust itself to the local conditions; i.e. temperature and background noise. This may take up to 30 minutes.**

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**When doing walk tests, wait for a least 3 minutes between each crossing, or disable the ATD function. Otherwise the alarm threshold level will increase eventually leading to non-detection of targets. This could mis-guide the operator to increase the sensitivity to a level, which during normal operation would lead to a high number of nuisance alarms.**

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**Once walk tests, alignment and adjustments have been finalised, make sure to re-enable the ATD-function to avoid nuisance alarms from moving vegetation, wind or small animals.**

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