

APPLICATION NOTE

Using Pocket InSight with the i.roc PDA and iPAQ with Actisys USB Dongle



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Introduction

Manufacturers of Smartphone and PDA devices have moved away from Infrared (IrDA) communication ports that were commonly found on these devices in the early 2000s. This report details an alternative method for continuing to provide Pocket InSight functionality.

The main requirement is to use a PDA device that supports Windows Mobile 5 or 6 and is also capable of acting as a USB host.

It is important to recognise the difference between a device that just has a USB port (which enables the device to be attached to a PC as a 'USB device') and the ability to perform the role of a USB host. A USB host is capable of having other USB devices attached to it such as flash disks (memory sticks), keyboards, printers and in our case, an IrDA dongle.

Device Operating System

As of 2011, Windows Phone 7 has replaced Windows Mobile 5 and 6. Unlike the previous versions of Windows Mobile which have been generally backwards compatible, Windows Phone 7 is **not** compatible with previous Windows Mobile versions. It is therefore necessary to obtain a device that uses Windows Mobile 5 or 6 OS (Operating System) and **not** a device that uses Windows Phone 7 or other non-Microsoft OS such as Android, etc.

i.roc Option – Required Hardware

Rotork has an agreement with Ecom who supply a range of ruggedised PDAs called the i.roc range. These are premium devices suitable for heavy duty field use and explosion proof (ATEX, FM & CSA) certified versions are available. As of September 2011, the pricing for Rotork customers is 20% off the Ecom list price below. Please check with Ecom for latest pricing.

- PDA i.roc 420 standard version (64MB, 1GB SD) AS003700 £1,238
- Ex-PDA i.roc 620 –Ex ATEX Zone 1/21 (64MB, 1GB SD) AS003703 £2,607
- Set docking station incl. USB-cable & adapter AS002795 £356
- Leather case for i.roc with carry strap and pen AS002752 £119

<http://www.ecom-ex.com/products/mobile-computing/pocket-pc/iroc/devices/>

Rotork publication PUB041-004 (P112) details the use of the i.roc for IQ and CVA.

i.roc Option – Required Software

If you have purchased an i.roc device from Ecom under the Rotork pricing agreement, it will come preloaded with Rotork Pocket InSight Software.

The Pocket InSight **Internal** IrDA version software is required for the i.roc and can also be downloaded from the Rotork website:

<http://www.rotork.com/en/support/index/iqpocketinsight>

iPAQ Option – Required Hardware

As of July 2010 the HP iPAQ 214 was available from HP. The iPAQ 214 has since been discontinued by HP; however as of September 2011 it is still available new from some suppliers and will continue to be available second-hand for some time to come.

As the iPAQ 214 was well suited for running Pocket InSight and no similar alternative is yet available, details of this device are provided below.

The following 3 items are required:

- 1) HP iPAQ 214 (Windows Mobile PDA capable of USB host functionality) currently available for approximately £250 ex VAT from various suppliers: Note as it is no longer supplied by HP, you are likely to have to search for a local supplier who has stock.



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- 2) HP iPAQ 200 Series Enhanced Sync/Charge Cable **FB112AA** / HP Part No: **480687-001** Spares Part No: **482599-001** (not 463382-001 as this is the standard lead). This is required to provide the USB host socket which is not available with the cables supplied with the iPAQ 214 as standard. The enhanced cable also allows the iPAQ to be charged and connect to a PC as a USB device (useful for uploading actuator files to a PC). Cost from HP was £18 ex VAT and it currently available from:

- Stuff UK.net, £18.79 ex VAT
+44 (0)208 335 5577
- www.insight.com
- Active Electronics Plc, phone:
+44 (0)1494 449904
- HP may also be able to help:
+44 (0)845 1610030



- 3) USB IrDA dongle with internal IrDA stack. These are different to and more expensive than regular IR dongles as they provide a COM port directly for use by the computer and contain an internal IrDA stack. The **ActiSys ACT-IR120UD** has been tested and works. The ACT-IR100UD was also tested and also works, but this is the development version. It is more expensive than the 120UD model and the extra development features are not required. See ActiSys site and datasheet:

<http://www.actisys.com/Documents/ACT-IR1x0UD-Flyer-v1.0.0.2-091029.pdf>



The prices below were provided by ActiSys for the ACT-IR120UD device as of August 2010:

1pc: \$68 each
10pcs: \$65 each
100pcs: \$59 each
250pcs: \$50 each

To place an order with ActiSys, you can directly contact Actisys sales person Ms Sarojini Chandra sarojini@actisys.com. Alternatively use URL <http://www.actisys.com/ACTISYSOrderForm.doc> to download the order form and fax it to ActiSys (fax number is on the form).

www.actisys.com

921 Corporate Way Fremont CA 94539, USA
Tel # 510 490 8024 Fax # 510 623 7268

For technical issues (not sales) email Suresh Lakhani suresh@actisys.com.

iPAQ Option – Required Software

The following software is required. The links shown below are valid as of September 2011. Please contact the Systems Sales Department of Rotork, Bath, UK if you have problems obtaining the correct software.

- 1) Pocket InSight **External** IrDA version. The standard build of InSight expects to communicate with an internal IrDA port. The External IrDA version should be downloaded from the Rotork website when using the external ActiSys IrDA adaptor.

<http://www.rotork.com/en/support/index/igpocketinsight>

- 2) Windows CE driver for IrDA dongle. The dongle looks like a standard 'Prolific USB

to RS232' adaptor and requires this driver. Note the part number the driver refers to is not the same as the above dongle, however this is the correct driver.

http://www.actisys.com/Drivers/IR224UN/WinCE/ARM/Generic_IR224UN_WinCE50_ARM_v1009.CAB

Installation Procedure

This procedure assumes use of the iPAQ 214 device. If you have another device, it will need to be Windows 5 or 6 in order to run the Pocket InSight software, so the procedure below should be similar.

- 1) Familiarise yourself with the iPAQ 214 and go through the initial start-up procedure if you are using the device for the first time (setting time and date, country, calibrating the screen, etc).
- 2) Connect the USB host cable to the iPAQ and ensure the host port is working correctly. This can be tested by attaching a USB flash disk or keyboard to the iPAQ, both of which do not need additional drivers to be installed. A flash disk will show up in file explorer as an additional "Hard Disk" device.
- 3) Copy the special Pocket InSight executable and IrDA driver files from a PC onto a USB flash disk and then plug the flash disk into the iPAQ. Using the file explorer, find the flash disk and copy the InSight executable onto the iPAQ (no installation required). Now run the dongle driver installation ".cab" file from the flash disk and follow on-screen prompts. Choose to install to the iPAQ's main memory, not the storage card, if you are prompted. You may be asked to reset the iPAQ.
- 4) Now remove the flash disk and connect the dongle to the iPAQ. If nothing happens this is good. If you are asked to supply a driver file, then the driver installation has not worked correctly.
- 5) Now using file explorer find the InSight file that was copied to the iPAQ and run it. Log in and try to connect to an

actuator as normal to test communications. You should be able to use all features as normal, if you get any errors relating to not being able to communicate or open a port, see the Troubleshooting section.

iPAQ Option – Troubleshooting

If you have problems with the iPAQ, attaching the host cable or getting a flash disk to work with the iPAQ, refer to the iPAQ instructions.

If you have trouble copying the InSight file to the iPAQ, choose another destination folder and check there is enough memory space free on the device. If there is not enough space on the device, you will either need to delete programs and files to make space, or add an external memory card and copy the executable there.

If you have problems installing the ".cab" dongle driver file, check that you have correctly downloaded it and try downloading the file again. Also make sure your device uses the ARM processor, which the iPAQ 214 does. If you have an x86 based device, you will need another driver file which can be downloaded from the x86 folder here:

<http://www.actisys.com/Drivers/IR224UN/WinCE/>

If you have successfully installed the drivers and copied the InSight program but have problems getting InSight to connect, you can try connecting a USB to serial adapter to the iPAQ. This should be accepted without asking for a driver file. You can then connect to a COM port on a normal computer via null modem or cross over serial cable and open HyperTerminal with the following settings: 115200 baud, No Parity, 1 Stop Bit, 8 Data Bits.

If you now run InSight on the iPAQ, you should see "HHC01" and some control characters appear in the HyperTerminal window. This shows InSight and the driver are installed correctly. The issue is now with the IrDA dongle or the actuator you are trying to connect to. If you do not see the text, the driver is not installed properly or there is a problem with the iPAQ and/or USB host cable.

If you have further problems with the InSight program, please contact the Systems Sales Department at Rotork, Bath, UK.

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