Installation and User Guide


# RotatIR Automated Rotating Sample Stage Accessory

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# Introduction

The PIKE Technologies RotatIR is designed for automated selection of the angle of transmission of the sample relative to the IR beam in the FTIR sample compartment. Applications include the study of sample thickness and sample reflectivity. Selection of the angle of transmission is automated through the use of PIKE Technologies AutoPRO software, the Motor Control Unit and the integrated stepper motor. A full set of spectra may be collected automatically by pre-defining the angles from AutoPRO software.

The RotatIR features a standard 2" x 3" slide mount for easy positioning of different types of transmission sample holders. AutoPRO software is written in Visual BASIC and allows complex test sequences to be setup, stored as methods and implemented with full flexibility. The Motion Control Unit incorporates a smart power supply and works with 85-265 VAC, 47-63 Hz power lines.

## Features

- Automated selection of angle of sample transmission
- Programmable from 0° to 360° with resolution of 0.2°
- Automated collection of spectra at the defined angle of transmission via AutoPRO software
- Compatible with most FTIR systems

# Unpacking Your Accessory

In order for you to quickly verify receipt of your accessory, we have included a packing list. Please inspect the package carefully. Contact PIKE Technologies immediately if any discrepancies are found.

## Packing List

RotatIR Accessory Manual

PN 350- 091200

Quantity 1


AutoPRO Manual and Software

PN 350-000070

Quantity 1


RotatIR Accessory

091-20XX

Quantity 1

Motor Controller

Quantity 1

RotatIR Cables & Power Cord

Quantity 1

# Installation

The RotatIR accessory has been tested in the PIKE Technologies facility to ensure that it performs to specifications. The following is the procedure for accessory installation.

1. The RotatIR accessory fits into the sample compartment of the FTIR spectrometer. Your RotatIR is set to an appropriate configuration to fit the sample compartment of the FTIR instrument you specified. Before inserting the accessory in the sample compartment, ensure that your spectrometer is aligned. If the instrument is not aligned, follow the manufacturer's instructions for maximizing the interferogram signal (the IR energy throughput) of your FTIR spectrometer. In order to locate the accessory in the correct position, simply place the entire accessory into the FTIR sample compartment with the PIKE label and 15 pin connector facing the front and line up the base plate provided with the holes/pins in your FTIR Spectrometer.

2. Fasten the accessory onto the FTIR sample compartment base plate using the captive screw(s) located on the RotatIR base plate (some accessories may be mounted on their own baseplate having two mounting screws or a mounting screw/pin combination, depending on spectrometer configuration).

3. Tighten the mounting screws (with flat head screwdriver or by hand) to firmly position the accessory base onto the FTIR sample compartment base plate.

# Installing the AutoPRO Motor Controller

The motion control electronics interface the RotatIR to your computer. Commands are sent to this electronics unit using a USB cable. A 15 pin accessory cable is used to connect this unit to the accessory.

## Connecting the Motor Controller to Your Computer

The power supply for the motor controller is self-adjusting and can be used in most locations. Please read the labels on the rear of the motor controller before attempting to connect the system. The power for the motor controller should always be turned off when attaching the cables.

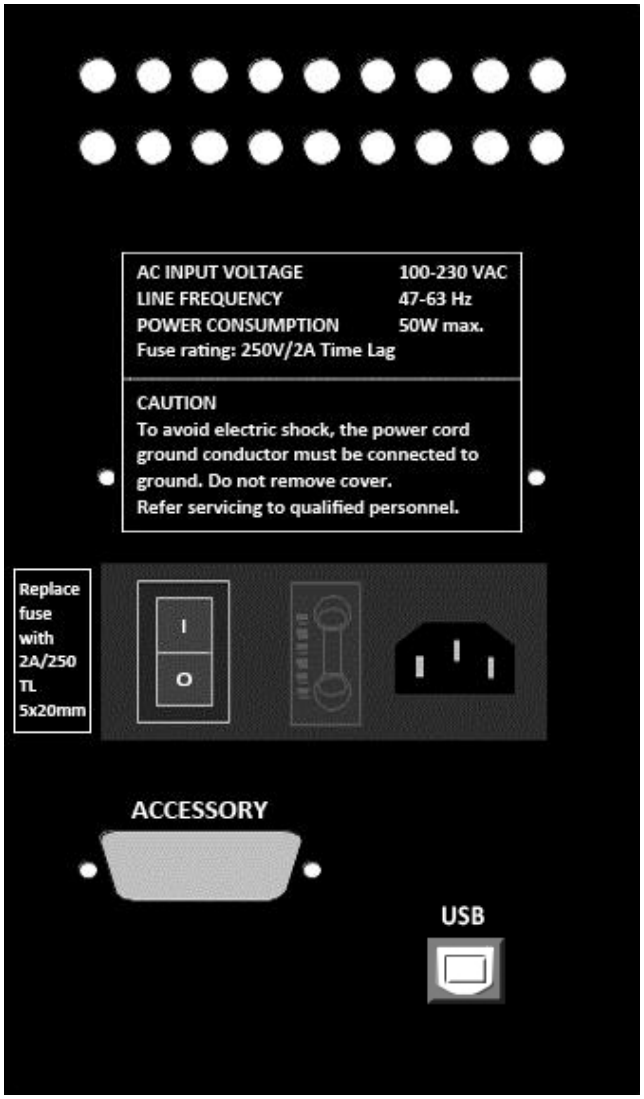



*Figure 1: Motor controller rear panel*

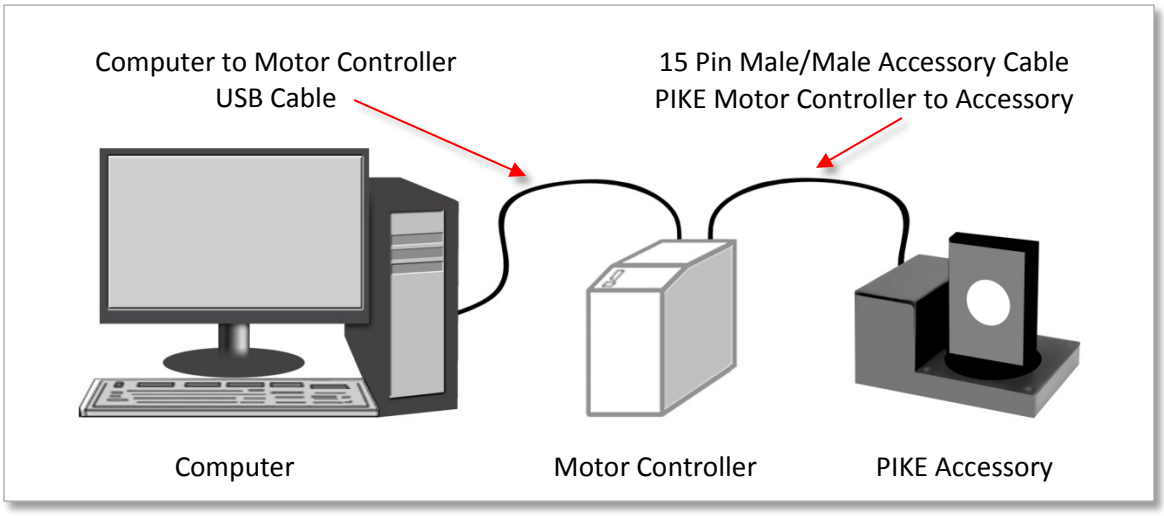



*Figure 2: Correct cabling procedure for the RotatIR*

- The accessory port of the motor controller should be connected to the accessory through the 6 foot, male-to-male 15-pin cable provided.

- Connect the USB cable from the controller to the PC.

# Installation of the AutoPRO Software

## System Requirements

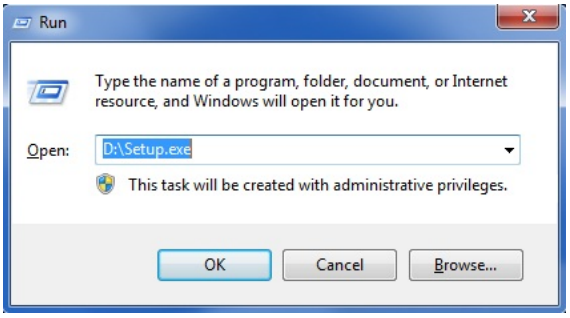
AutoPRO is a Microsoft Windows compliant program. The program was designed to run within XP or Windows 7.

## Loading from Windows

1. Insert the program disk into the CD-ROM drive of your computer.

2. If the installation doesn't start automatically from within the Program Manager, select **Run** from the File Menu. The Run dialog box will appear to enter a filename.

3. You may either enter **x:setup.exe** or "browse" to the CD Disk directory and select **setup.exe**.




A setup dialog box will appear for a few moments while the installation program checks for available memory and configuration.

The AutoPRO dialog box will appear:

- Choose to use the default path and select: Enter, or
- Choose to enter an alternative path and then select: Enter, or
- Choose to exit Setup by selecting: EXIT

The software will be copied. The source and destination files, and the percentage of the completed task are displayed. A dialog box will appear when the program has been loaded. Click on the OK button to complete installation.

## Files Placed on Your Hard Disk

During installation the following files are placed on your hard drive in the AutoPRO subdirectory:

| | |
|---|---|
| Ap5.exe | main AutoPRO app |
| Apd5.exe | programmer for AutoDiffusIR |
| Apv5.exe | programmer for VeeMax ,ATRmax, polarizers and RotatIR (stand alone) |
| Apvp5.exe | programmer for VeeMax and ATRMax with polarizers (combinations) |
| Apw5.exe | programmer for wafer stages - MappIR, Map300, Six inch, Autosamplers |
| Apxy5.exe | programmer for XY plate reader |
| Comment.exe | self-contained executable that writes into the spectral header |
| First.exe | self-contained executable that moves the stage to the first point in profile |
| Init.exe | self-contained executable that initializes the stage and moves it home |
| Load.exe | self-contained executable that loads the stage |
| Newfile.exe | self-contained executable that opens the file open dialog box |
| Next.exe | self-contained executable that moves the stage to the next point in the profile |
| Point.exe | self-contained executable that moves the stage to point n of the profile |
| Unload.exe | self-contained executable that unloads the stage |
| Ap5.hlp | Help files |
| 350-000700 AutoPRO software.pdf | AutoPRO5 operation manual |

Sample profiles installed in the AutoPRO5\Profile subdirectory:

- example.vep
- example.apd
- example.xya
- example.map
- example.waf
- example.pol
- example.atr
- example.vee
- 18 point samp.waf
- 36 point sample.map
- example.rot

Sample macros installed in the AutoPRO5\Macro subdirectory:

- Preexp.ab
- preexp.bas
- presamp.ab
- presamp.bas
- postsamp.ab
- postsamp.bas
- postexp.ab
- postexp.bas
- ap5.bas

# Online Help

AutoPRO provides on-screen help for commands and functions. More information on the general attributes of the Help screens may be found in the AutoPRO Manual.

## How to Use Help

Choose Help from the menu, or press F1 on the keyboard.

- **Index** - Displays an index of Help topics including menus, commands, and shortcuts.
- **Using Help** - Provides information on how to use Windows Help.
- **About** - Provides specific information regarding the version of AutoPRO and current system information.

You can use the Help buttons to display related Help topics. Options are:

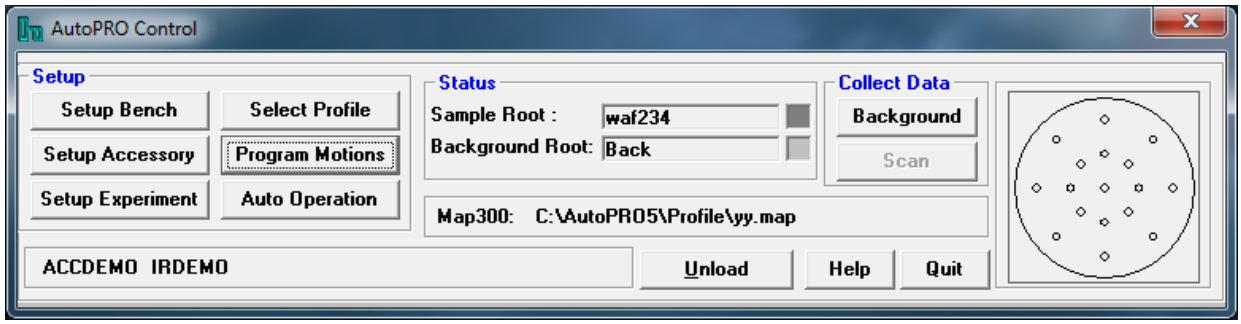
- **Contents** - Displays a list of Help topics.
- **Search** - Lists the keywords for AutoPRO. Enter a keyword or phrase in the **Search For** text box or select a keyword from the list box.
- **Back** - Displays the last topic you displayed.
- **History** - Displays a list of recent topics displayed.
- **Glossary** - Displays a list of terms and parameters used in AutoPRO and their definitions.

# AutoPRO Overview

AutoPRO is a Windows based automation software program for use with PIKE automated accessories and the AutoPRO motion controller. With this software package a range of automated accessories may be programmed and operated in conjunction with most Windows based FTIR software packages. Several programs comprise the complete software package, but the following two programs are central to the function of the software and will be introduced briefly here.

## AutoPRO Control

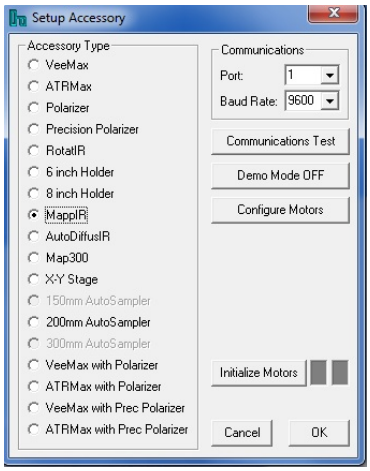
This program contains the tools required to operate your automated accessory.



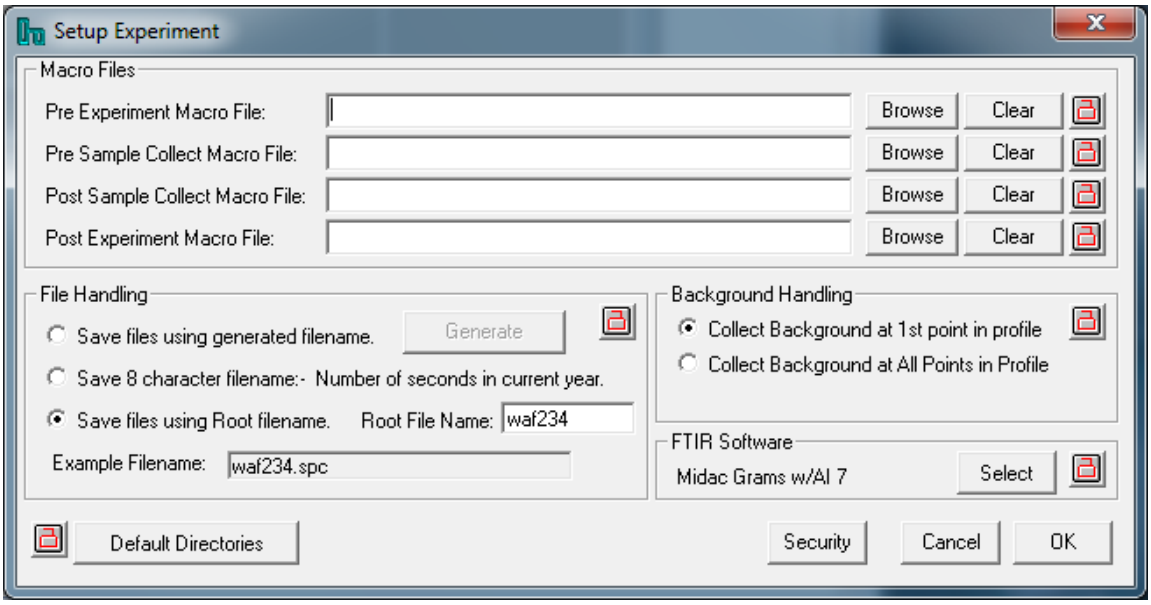

The AutoPRO control panel contains the following major functions:

- **Setup Bench -** Basic parameters for data collection (number of scans, resolution, etc.) may be defined and stored to a file.

- **Setup Accessory -** This function allows selection of the actual accessory used with the spectrometer, computer/accessory communication test, and basic accessory setup.



- **Setup Experiment -** Macros and executable files can be integrated into the autosampler routine. This function also allows special handling of multiple filenames and provides different security options.




- **Program Motions** - A series of samples may be defined and stored to a file. This file may be subsequently used to move your accessory while collecting data from your spectrometer.

### Status

The status of the accessory at any time is displayed. This includes the position of the accessory, the current status of the motors and a thumbnail view of the file being used for programming the motion.

*These and all other functions are described fully in the AutoPRO manual.*

## Init.exe, First.exe…

These are programs which may be inserted into an FTIR macro. With these programs the basic functions required to run the accessory may be accessed from within the macro. While the software is running a small AutoPRO status box is displayed in the lower right hand corner.

More details of how to use this and other .exe files available in the AutoPRO software are given in the AutoPRO User's Manual.

## SAFETY Precaution

When selecting an AC power cord for this unit, select one that has an appropriate source connector at the plug end and an IEC60320 C13 connector at the power supply end of the cord.

## Environmental Conditions for Operation

| | |
|---|---|
| **Altitude** | up to 2000m |
| **Temperature Range** | 5 °C to 40 °C |
| **Humidity Range** | max relative 80% RH |
| **Mains Supply Fluctuation** | +/- 10% unless otherwise specified |
| **Applicable Pollution Degree** | Category 2 (Normally only non-conductive) |
| **Transient Voltages Typically Present on Mains** | <1500 V |

## Options

| **Part Number** | **Description** |
|---|---|
| 162-5400 | Film Sampling Card – 20 mm clear aperture, 10 each |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