AUTOHFR Control Software

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When evaluating the friction performance of lubricating oils though, the value of friction coefficient as a function of temperature may be of great interest. Boundary lubricant additives are frequently only active over a restricted temperature range and the ability to characterise this performance in one simple test is desirable.

The standard HFRR control software allows the user to run standard diesel fuel lubricity tests on the HFRR instrument.

By using the AUTOHFR control software, the user has complete flexibility when defining the test profile. Each profile is built up from a series of individual steps, and the temperature, frequency and stroke length can be varied during each step. The standard HFRR instrument can perform tests at temperatures up to about 150°C. For temperatures above this, an optional high power heater box can be used which allows tests at up to 400°C.

AUTOHFR records and displays various parameters during the test. The friction force between the specimens, the contact resistance (film) value and the lower specimen holder temperature are continuously displayed in a graphical format throughout the test.

Data output is both graphical (which can be printed out using AUTOHFR) and formatted text (which can be manipulated in a spreadsheet).
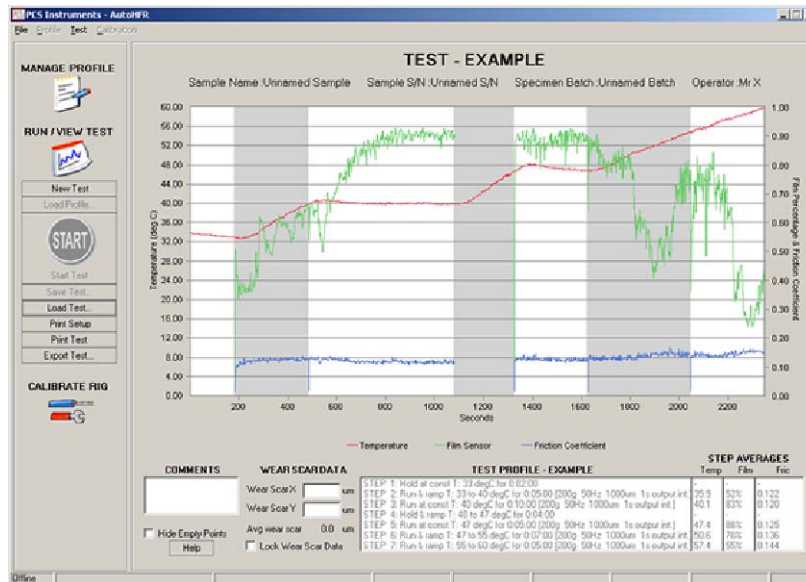
Communication

The program communicates with the electronics unit via a 9 way serial cable (supplied). The communiction is a two-way protocol, allowing the user to run a test from the PC, without the need to use the electronics unit keypad.

Please note that a serial port is required to communicate with the HFRR.

Recommended PC Specification

- *Processor (CPU)* - Intel Pentium 4 or AMD Athlon XP processor @ 1.8 GHz
- *Memory (RAM)* - 256 MB
- *Hard Drive Storage* - 20 GB (minimum disc space to install 160MB)
- *Monitor* - 15" monitor (Display resolution set to 1024 x 768 pixels)
- *Operating System* - Windows XP
- *CDROM Drive*
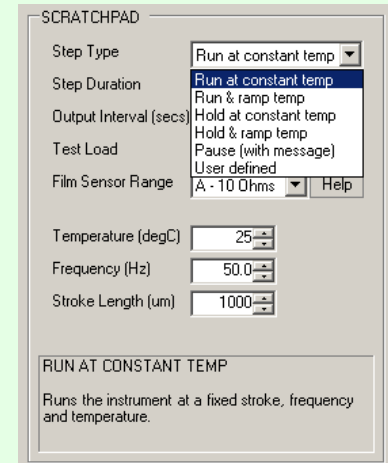- *RS232 Serial Port (9 pin connector) eg: COM1*

The AutoHFR software is supplied on a CD. The licence file is usually supplied on floppy disc. The licence file can also be supplied on CD if no floppy drive present.

Using AutoHFR

The AUTOHFR uses lists of instructions called profiles to sequence tests. The profiles can be created and edited using the AUTOHFR 'Manage Profile' feature. The profiles are stored in a binary format and cannot be read or edited using standard text editing programs (such as Notepad or WordPad). The profiles can only be edited or created from the AUTOHFR program.

The step types are listed in the pull down menu next to 'Step Type'.

The test types available are defined below.

Run at constant temp - The instrument will run at fixed values of temperature, frequency and stroke length.

Run and ramp temp - The instrument will run with fixed values of frequency and stroke length. You can set start and end temperatures for the step. The instrument will attempt to control the temperature of the specimen bath linearly between these temperatures over the step duration.

Hold at constant temp - The instrument will hold at the desired temperature. The pushrod will be stationary.

Hold and ramp temp - The instrument will attempt to linearly ramp the temperature from the specified start point to the specified end point over the step duration. The pushrod will be stationary.

Pause with message - The test pauses displaying a written message.

User defined - All parameters can be varied.

PCS Instruments