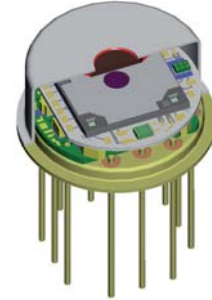


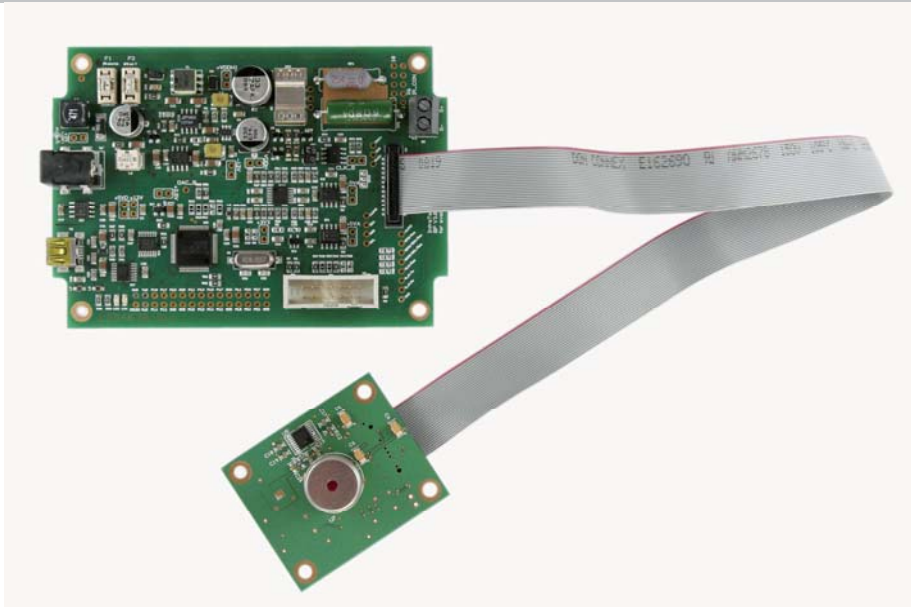
## Evaluation kit for Fabry-Perot detectors

### Purpose:

The kit supports customer needs for an initial test of InfraTec's Fabry-Perot detectors (FP) without having to develop test circuitry and software themselves. It allows easy control of detector and IR source with customized software to analyze the detector signals. With the help of this kit a quick and easy configuration of a simple FP spectrometer is possible.



### FIGURE



### CONTENT AND FEATURES OVERVIEW

It includes a basic board and a FP detector board with USB Interface, USB cable, ribbon cable, CD-ROM with test and measurement software, USB driver and a manual. The following features are integrated:

- Activation of FP detector and analysis of signals
- Activation of IR source
- Extensive configuration options including mappings of complete spectra by use of the "Fabry-Perot evaluation workbench" software

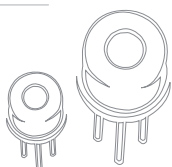
A version of this kit with one mounted LFP detector and an IR source is also available on request.

### SPECIFICATION

- Power supply: 12 V DC
- Current consumption: 150 mA (without IR source)
- Integrated detector supply:  $\pm 5$  V
- Integrated FP-control voltage generation: 0-90V; 16 bit
- Control of IR source up to 800 mA DC to 500 Hz (square, 0-100 % duty cycle)
- Signal acquisition with 12 bit, 2 kHz, analysis with FFT-technique

### REQUIREMENTS

- PC with Windows 2000, XP, Vista or 7
- USB 2.0 Interface
- Power supply 12 V DC (300 mA Minimum)
- FP detector and IR source



## Evaluation kit for Fabry-Perot detectors

### PERFORMANCE DETAILS

Electronics and software of the Fabry-Perot evaluation kit are designed to give the user full access to performance and tuning capabilities of InfraTec's new "variable color" products.

The basic operation principles are very similar as normally applied for conventional single or multicolor pyroelectric detectors: Modulation frequency, duty cycle and driving current of the IR source can be configured by software. The detector signal can be displayed real-time and recorded with 12 bit resolution and 2 kHz sampling frequency. Evaluation of the RMS amplitude is implemented by an FFT algorithm.

In addition to that, the electronics can provide voltages up to 90 V with 16 bit resolution to control the tunable filter. The calibration data for the individual filter is read out of the detectors integrated EEPROM. Latency for filter settling between measurements at different wavelengths can be configured, too.

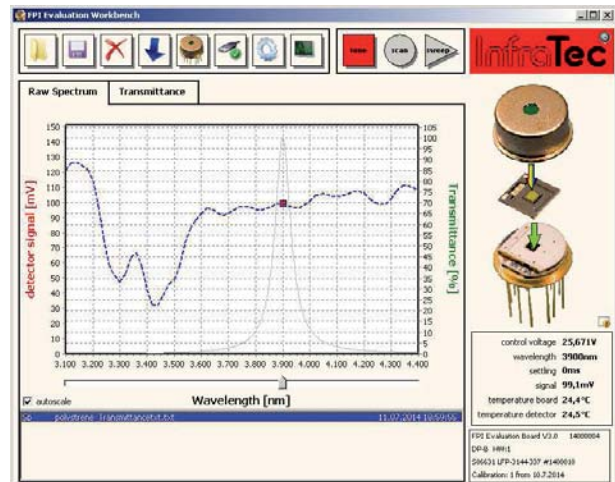
In the basic operation mode the filter can be manually set to any wavelength within the tuning range. Measurements can continuously be recorded into a log file.

The more advanced **Sequence mode** is intended to compare the tunable detector with conventional multispectral solutions like filter wheels or multicolor detectors. The filter is periodically adjusted to a set of wavelengths, which can be predefined by the user.

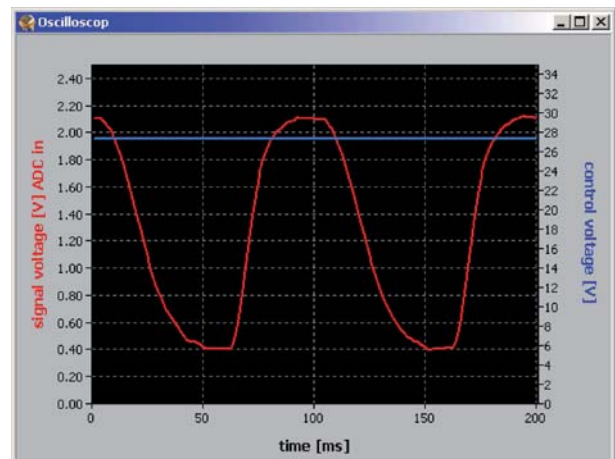
The **Scan mode** is used to obtain complete spectra with a designated spectral range and step size. Measurements can be displayed and saved as raw signal spectra or as transmittance spectra if a previously measured background spectrum was defined as reference.

The software also supports the new innovative continuous sweep mode. This particular operation mode has principally the potential to accelerate the recordings of spectra remarkably. Here the IR source is DC-driven, but the filter is continuously scanned and so the spectral information can be used directly for the modulation. With the assistance of the software waveform, tuning speed and wavelength range can be adapted to find the most suitable operation. Recordings can be made with the integrated logging function, so external software can be used for further signal analysis.

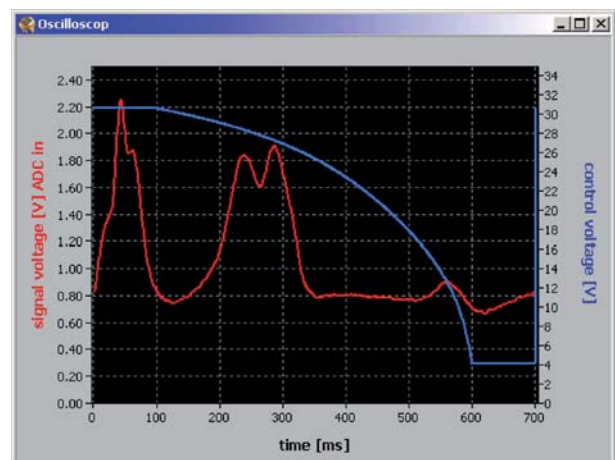
Please find more details in the evaluation kit manual and in our Fabry-Perot detector application note.



User interface of evaluation software; Transmittance spectrum of a polystyrene foil measured in scan mode



Signal voltage of LFP detector @ 10 Hz modulation frequency and constant control voltage



Sweep mode measurement of a polystyrene foil; detector signal and control voltage

