sIRoEye

"Hands-free" NIR solution, pedal operated for quick checks of bigger parts

Technology by **IoSys** – Europe's Leading Specialist for Plastic Detection

GUT
Environmental Technologies

With the Infrared spectrometry (NIR) of the IoSys units it is possible to identify plastics of the household-, engineering electronics and automotive application field. It allows direct analysis of non-dark-colored plastic parts (films, foils, granules, solid, foamed) and other materials like carpets and textiles.

The measuring principle is the diffuse near infra-red reflection spectroscopy where the characteristic absorption patterns of different polymer types in a typical spectral region are used. The polymer sample is radiated with infrared light and the reflected light of the measuring place is analyzed by a near infrared detector array. To measure transparent materials a white ceramic must be placed behind the sample as a reflection mirror.

For polymer identification the sample is held or placed in front of the measuring eye of the desktop unit and the measurement being started with a foot pedal, thus allowing the operator to have his hand free. After the measurement the result is indicated on the built-in LCD-touchscreen or an external VGA monitor or also on an optional external touchscreen. The result can also be used via the internal relay interface for controlling of a semi automatic sorting line, e.g.. The polymer types for the 7 channels can be programmed individually.

The device includes the optical NIR-system and the computer, which controls and evaluates the identification process. Control and parameter settings like model selection can be set by the integrated LCD-touchscreen, by an external keyboard or by an external optional colour touchscreen. Data exchange is possible via an USB port.

Every VGA monitor together with a keyboard can be used for the display of spectra and results. Here also the so-called Spectra Mode can be used for the direct comparison of different spectra and results. Also an LED-Array for the visual display of the results is available as option.

The identification of different plastic types is the result of a trained pattern recognition with a specially developed neural network inside a database with several counterchecking. The result of the calculation is a list of the most probable polymer types identified within a probability between 0 and 100%. This comparison is necessary, since – contrary to metals – plastics have no norms and no standardizations!

The software allows detailed spectra viewing, loading, saving and comparing. This possibility helps to develop own measuring applications besides the standard ranges.

An internal relay with 7 freely programmable output signal channels enables to use this unit also as a controller for semi-automatic sorting applications.

With the **sIRoEye** it is possible to identify the following plastics and their mixtures independently of surface structure and contamination:

PA6/PA66	PS	PC+ABS	ABS+PVC	PLA
PA12	PPO	PBT	PVC	Cellulose
PE	SAN	PET	PE+PA	
PP	PC+PET	PMMA	PE+PET	
ABS	PC	POM	PP+PET	

Technical Data:

- Dimensions:	270 x 270 x 100 mm
- Weight:	2,7 kg
- Power Supply:	100 - 230 VAC, 50/60 Hz

Optional Accessories:

- External VGA-Screen for the display of results
- External touchscreen for display and operation
- External printer for result documentation
- LED-Array for the visual indication of the measuring results

Specifics of this unit:

- Identification of plastics from household- and electronics waste as well as carpets and textiles
- Hands-free operation for bigger parts etc.
- Non-destroying measurement
- Less than 1 sec. measuring time
- Easy operation with LCD-touchscreen
- Measurement of foils and granulates possible
- Detailed spectra overview for easy comparison
- 7 individually programmable outputs for signal generation

According to different demands in recycling matters, customers can arrange it to have the system calibrated using their own samples.