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PEM-Lite++

Programming Library for Plasma Emission Measurement

For developing your own plasma emission measurement applications using our TranSpec spectrometers, we provide our powerful and very easy-to-use programming library **PEM-Lite++**.

With PEM-Lite++ the entire spectra data acquisition, like scanning the diode array, raw data averaging, possible dark current correction and the emission spectra normalization is fully encapsulated in just a few simple function calls. PEM-Lite++ gives you full access to all measured spectra (including the raw data) and easily permits to report emission trace values to an external analog out module.

- Runtime licensed Dynamic Link Library (DLL) providing standard C calls
  Compatible with common C/C++ compilers, Visual Basic and VBA (Excel), LabView
- Extensive parameter checks and measurement status verification
  You hardly can do anything wrong when working with PEM-Lite++
- Supports external I/O module with 8-channel TTL and 4-channel analog out
- Detailed user's manual as compiled HTML file and printed PDF document
- Demo software as Windows console application, including C/C++ source code
- See next page for a programming example!

Technical specifications on next page ►

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PEM-Lite++ Programming Library • Technical Specifications

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Minimum Hardware and Software Requirements

- PC/Laptop with at least Pentium-4
- Windows XP or Vista
- C/C++ development system (MS Visual Studio recommended), Delphi, Visual Basic or VBA (Excel), LabView
- TranSpec spectrometer

Programming Example

The following short programming example may demonstrate how easy to use the PEM-Lite++ is. As an example, we code the fully automated measurement of a 10 times averaged emission spectrum with subsequent analog output of an emission trace value:

```
// Step 1: open and initialize spectrometer
PEMLITE_SPECHARDWARE sSpecHardwareInfo;
PEMLite_OpenSpectrometer( PEMLITE_TRANSPEC_19Z, &sSpecHardwareInfo );

// Step 2: setup measurement parameter:
PEMLITE_MEASPARA sMeasPara;
sMeasPara.dIntegrationTime = 20.0;        // 20 ms integration time
sMeasPara.bEnableAverage  = 1;            // averaging on
sMeasPara.lNumberAverage = 10;            // 10 scans for averaging
PEMLite_SetMeasPara( &sMeasPara );        // notify settings to spectrometer

// Step 3: open and initialize external digital/analog module
PEMLite_USB3110_OpenDevice( PEMLITE_DIGITAL-8OUT0IN, PEMLITE_ANALOG_UNIPOLAR );

// Step 4: perform measurement of an averaged emission spectrum
PEMLite_RunMeasSpectrum();                // start measurement

PEMLITE_SPECSTATUS sSpecStatus;
PEMLite_GetSpecStatus( &sSpecStatus );    // wait until measurement is done
while ( sSpecStatus.bRunSpectrum )
    PEMLite_GetSpecStatus( &sSpecStatus );

// Step 5: retrieve measured emission spectrum
PEMLITE_SPECDATA sSpecData;
PEMLite_GetSpectrumData( PEMLITE_SPECTRUM_EMISSION, &sSpecData );

// Step 6: compute and report emission trace value at 254 nm, for instance:
double dTraceValue;
PEMLite_GetTraceValue( 254.0 , &dTraceValue );

// normalize trace value to +10 V and report at analog channel 0
....
PEMLite_USB3110_SetAnalogOut( 0 , dTraceValueAsVolt );
```


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