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PEM-ProLib++

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-ProLib++**.

With PEM-ProLib++ 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-ProLib+ gives you full access to all measured spectra (including the raw data) and easily allow 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-ProLib++
- 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-ProLib++ Programming Library • Technical Specifications

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Minimum Hardware and Software Requirements

- PC/Laptop with Intel Dual-Core (2 GHz or higher recommended)
- 32-bit version for Windows XP / Vista / 7 - fully native 64-bit version for Windows 7
- CD/DVD drive for installation
- C/C++ development system (MS Visual Studio recommended), Delphi, Visual Basic or VBA, LabView
- TranSpec spectrometer (USB 2.0 or 3.0 required, optionally Ethernet adapter)

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
PEMPRO_SPECHARDWARE sSpecHardwareInfo;
PEMPro_OpenSpectrometer( PEMPRO_TRANSPEC_19Z, &sSpecHardwareInfo );

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

// Step 3: open and initialize external digital/analog module
PEMPro_USB3110_OpenDevice( PEMPRO_DIGITAL-8OUT0IN, PEMPRO_ANALOG_UNIPOLAR );

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

PEMPRO_SPECSTATUS sSpecStatus;
PEMPro_GetSpecStatus( &sSpecStatus );       // wait until measurement is done
while ( sSpecStatus.bRunSpectrum )
    PEMPro_GetSpecStatus( &sSpecStatus );

// Step 5: retrieve measured emission spectrum
PEMPRO_SPECDATA sSpecData;
PEMPro_GetSpectrumData( PEMPRO_SPECTRUM_EMISSION, &sSpecData );

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

// normalize trace value to +10 V and report at analog channel 0
....
PEMPro_USB3110_SetAnalogOut( 0 , dTraceValueAsVolt );
```


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