

FWS-Poly DLL Programming Manual

SDK file is based on ".NET Framework 3.0"

Namespace: ISM_Device

The class : ClassPoly.

Python supports the "Python.NET" package for the Python programmers.

Or you can check another way of this in the link below.

<https://github.com/pythonnet/pythonnet>

Labview also support the way to call .NET dll, please refer to a simple example file.

For the overall function flow, refer to the labview example description.

A. Function return value

DLL internal declaration

enum Polymsg:int

```
{
    MSG_NO_ERROR = 0,
    MSG_DEVICE_SEARCHING = 1,
    MSG_CONNECTION_OK = 2,
    MSG_SET_WAVE_OK = 3,
    MSG_DEVICE_INIT = 4,
    MSG_DEVICE_BUSY = 5,
    MSG_DEVICE_READY = 6,
    MSG_DEVICE_CLOSE_PORT = 10,

    ERR_DEVICE_NOT_FOUND = -1,
    ERR_DEVICE_FILE_NOT_FOUND = -2,
    ERR_DEVICE_FILE_ERROR = -3,
    ERR_DEVICE_NOT_READY = -4,
    ERR_DEVICE = -5,
    ERR_DEVICE_ERROR_MODEL_NO = -6,
    ERR_DEVICE_ERROR_SERIAL_NO = -7,
    ERR_DEVICE_ERROR_WAVE_RANGE = -8,
    ERR_DEVICE_NOTCONNECTED = -9,

    ERR_COMM_CONN_ERROR = -11,
    ERR_COMM_CONN_LOST = -12,
    ERR_COMM_TIMEOUT = -13,
    ERR_COMM_ERROR = -14,

    ERR_NOT_FOUND_WAVE = -21,
    ERR_SET_WAVE_ERROR = -22,
}
```

MSG_NO_ERROR = The command has been executed properly.

MSG_DEVICE_SEARCHING = Searching for device.

MSG_CONNECTION_OK = Device is connected.

MSG_SET_WAVE_OK = Successfully changed CWL and FWHM.

MSG_DEVICE_INIT = Device is initializing.

MSG_DEVICE_BUSY = Device is busy.

MSG_DEVICE_READY = Device is ready.

MSG_DEVICE_CLOSE_PORT = Device is not ready.

ERR_DEVICE_NOT_FOUND = Device not found.
ERR_DEVICE_FILE_NOT_FOUND = Calibration file not found.
ERR_DEVICE_FILE_ERROR = Calibration file error.
ERR_DEVICE_NOT_READY = Device is busy.
ERR_DEVICE = Communication error.
ERR_DEVICE_ERROR_MODEL_NO = Calibration file and model number doesn't match.
ERR_DEVICE_ERROR_SERIAL_NO = Calibration file and serial number doesn't match.
ERR_DEVICE_ERROR_WAVE_RANGE = Calibration file and wavelength range doesn't match.
ERR_DEVICE_NOTCONNECTED = Device is not connected.
ERR_COMM_CONN_ERROR = Communication error.
ERR_COMM_CONN_LOST = Device disconnected.
ERR_COMM_TIMEOUT = Communication timeout.
ERR_COMM_ERROR = Communication command internal error.
ERR_NOT_FOUND_WAVE = Wavelength out of range.
ERR_SET_WAVE_ERROR = Returning of error for
GetCurrentWavelength due to absence of Set wavelength because
of SetWavelength command error

B. Poly commands

1. int PolyConnect(string path);
 - Parameters
 - path : Path and location of calibration file
 - Return Value
 - MSG_NO_ERROR
 - ERR_COMM_ERROR
 - ERR_DEVICE_ERROR_MODEL_NO
 - ERR_DEVICE_ERROR_SERIAL_NO
 - ERR_DEVICE_ERROR_WAVE_RANGE
 - ERR_DEVICE_NOT_FOUND
 - ERR_DEVICE_FILE_NOT_FOUND
 - ERR_DEVICE_FILE_ERROR
 - Remark
 - Use the calibration file to activate the port then connect
2. int Disconnect();
 - Parameters
 - Return Value
 - MSG_DEVICE_CLOSE_PORT
 - ERR_COMM_TIMEOUT
 - ERR_COMM_ERROR
 - Remark
 - Stop communication and close port.
3. int GetDeviceStatus();
 - Parameters
 - Return Value
 - MSG_DEVICE_INIT
 - MSG_DEVICE_BUSY
 - MSG_DEVICE_READY
 - ERR_COMM_CONN_LOST
 - ERR_DEVICE_NOTCONNECTED
 - Remark
 - Read the current status of the device.
4. bool GetDeviceEnabled();
 - Parameters
 - Return Value
 - True : Port is open and device is connected.
 - False : Port is closed or device is not connected.
 - Remark
 - Check the connection status of the device.
5. string GetComPortNumber();
 - Parameters
 - Return Value
 - COM port String return
 - Remark
 - Read the connected COM port

6. int GetInforData(ref string model, ref string serial, ref string range);

- Parameters

model : Model number of device
serial : Serial number of device
range : Wavelength tuning range

- Return Value

MSG_NO_ERROR
ERR_DEVICE_NOTCONNECTED

- Remark

Reads the model number, serial number or wavelength tuning range of the connected device.

7. int SetWavelength(string CW, string FWHM);

- Parameters

CW : Center wavelength
FWHM : Bandwidth

- Return Value

MSG_NO_ERROR
ERR_NOT_FOUND_WAVE
ERR_DEVICE_NOT_READY
ERR_DEVICE_NOTCONNECTED

- Remark

Changes to the input wavelength (CW) and bandwidth (FWHM).

If ERR_NOT_FOUND_WAVE is returned, then

GetStringMsg command is used to return the CW/FWHM values as string values which caused the error.

Actually, CW and FWHM are string variables, but CW operates at one decimal point, and FWHM operates as an integer. Therefore, for example, CW/FWHM should be entered in the format of 532.5/10 respectively. And the number format should use US dot. The precision of the decimal point depends on the specifications of the equipment, normal value is 0.5.

8. int GetCurrentWavelength(ref string sw, ref string cw, ref string lw, ref string fwhm);

- Parameters

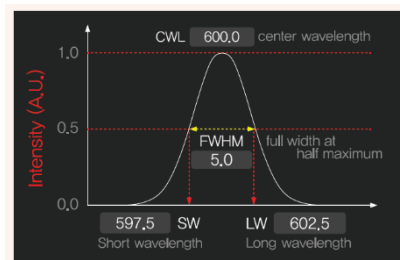
sw : short wavelength
cw : center wavelength
lw : long wavelength
fwhm: bandwidth

- Return Value

MSG_NO_ERROR
ERR_DEVICE_NOTCONNECTED

- Remark

Reads the set CW, SW, LW, FWHM



9. int GoBlankPosition();

- Parameters

- Return Value

MSG_NO_ERROR

MSG_DEVICE_BUSY

ERR_DEVICE_NOT_READY

ERR_DEVICE_NOTCONNECTED

- Remark

Moves to blank position. Empty position. No filtering.

10. int ScanWavelength(double start, double end, int fwhm, double step, double delay);

- Parameters

start : Start wavelength

end : End wavelength

fwhm : bandwidth

step : step size for scan

delay : time to stay at one wavelength

- Return Value

MSG_NO_ERROR

MSG_DEVICE_BUSY

ERR_NOT_FOUND_WAVE

ERR_DEVICE_NOT_READY

ERR_DEVICE_NOTCONNECTED

- Remark

Scans wavelength from start to end with a fixed FWHM and step size and time for stay in each wavelength

11. string GetStringMsg(int code);

- Parameters

code : message number

- Return Value

MSG_NO_ERROR

MSG_DEVICE_BUSY

ERR_DEVICE_NOT_READY

ERR_DEVICE_NOTCONNECTED

- Remark

If the message number parameter input,

Text(string) is returned by decoding message corresponding to the number

12. int DeviceReset();

- Parameters

- Return Value

MSG_DEVICE_INIT = Reset the device

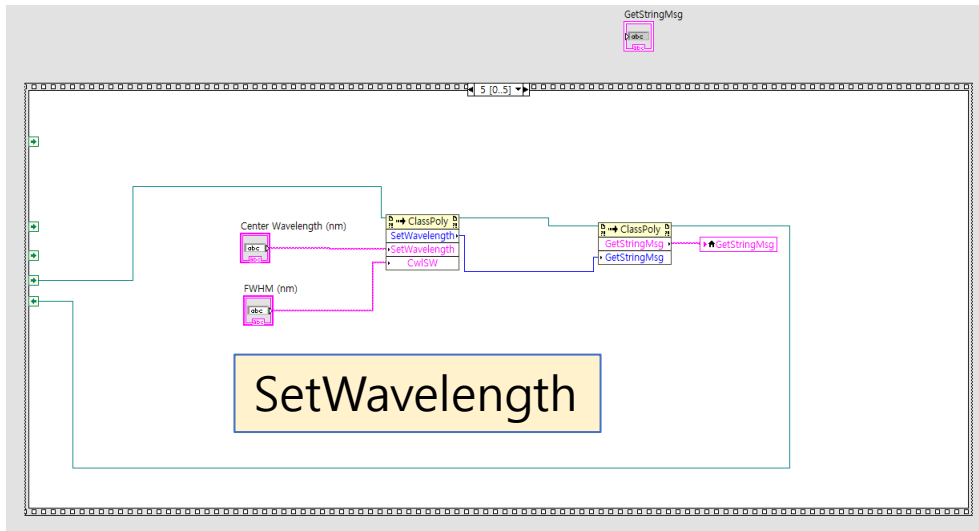
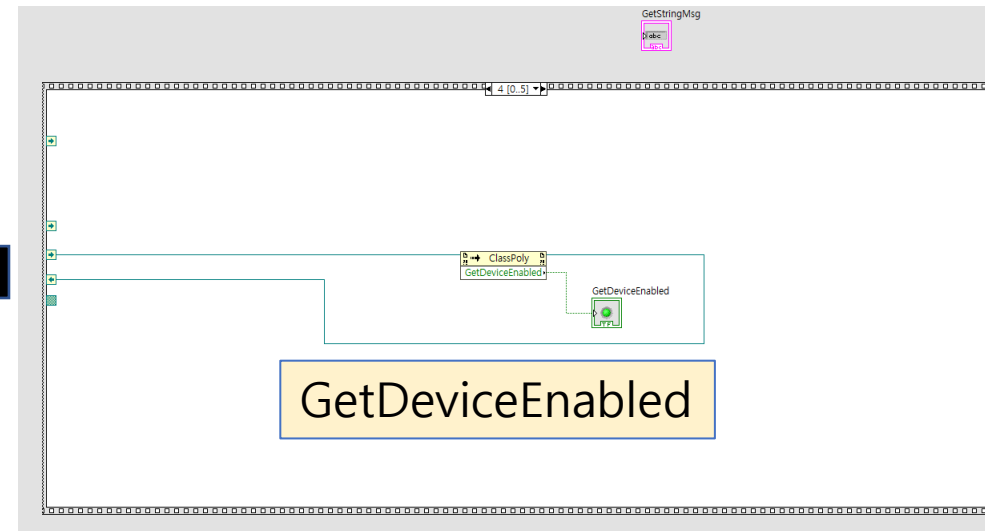
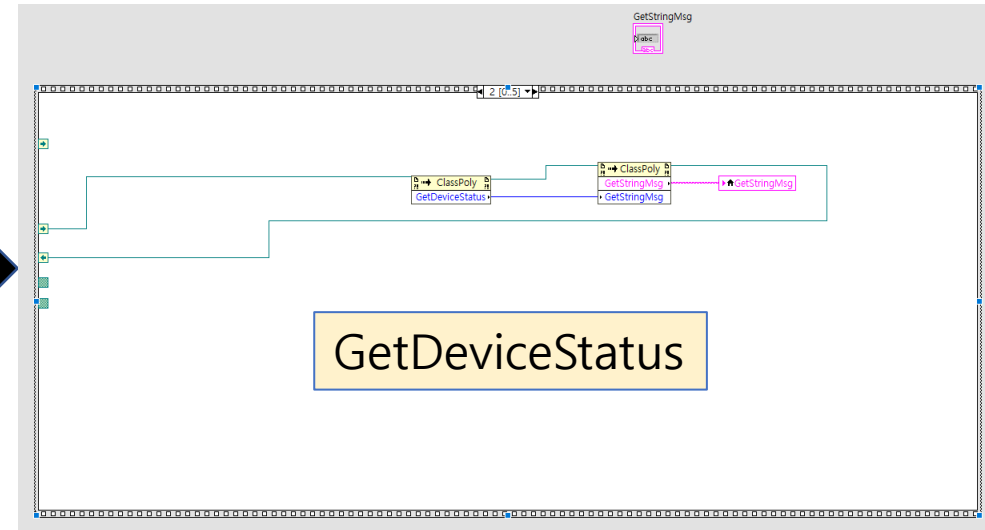
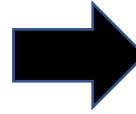
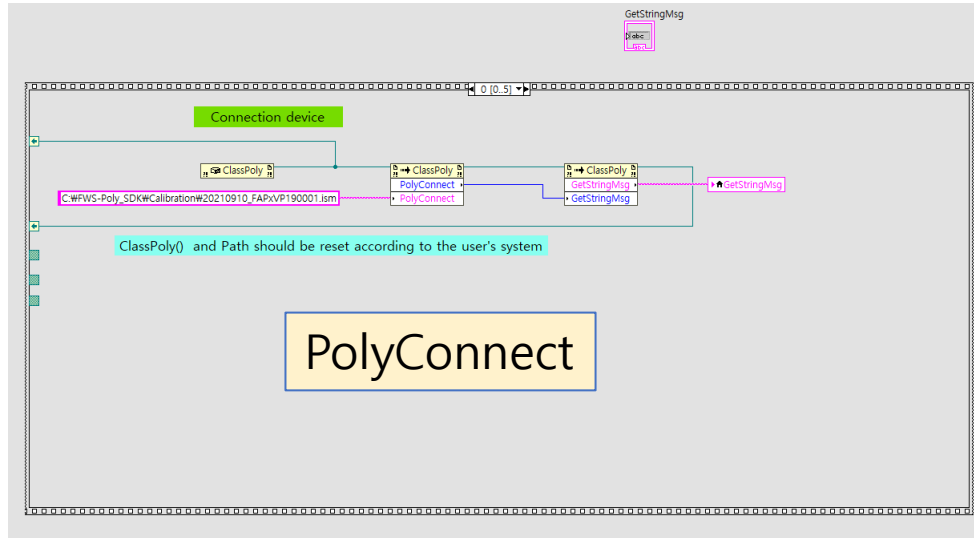
ERR_DEVICE_NOTCONNECTED = Device not connected

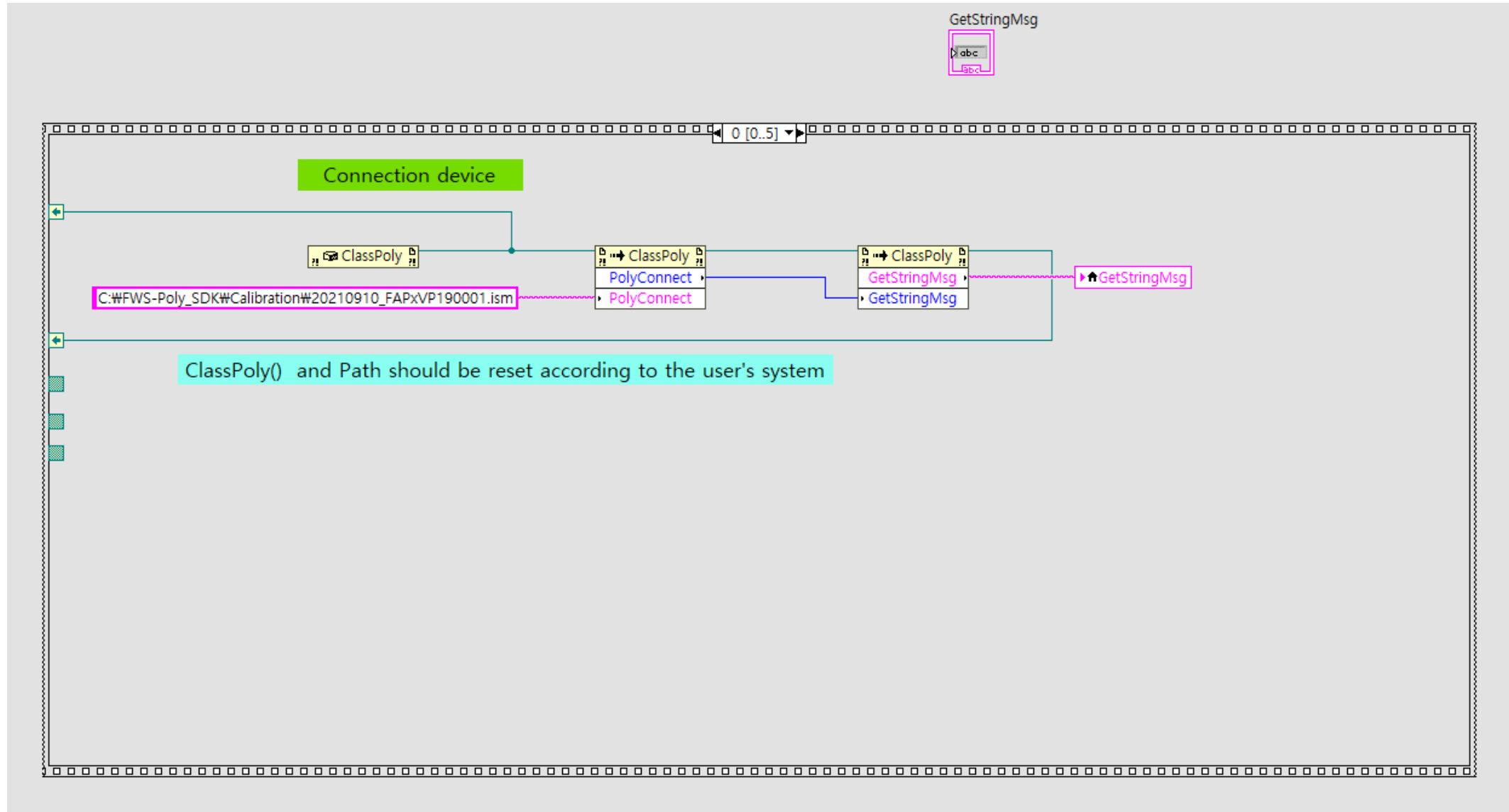
- Remark

Reset the device

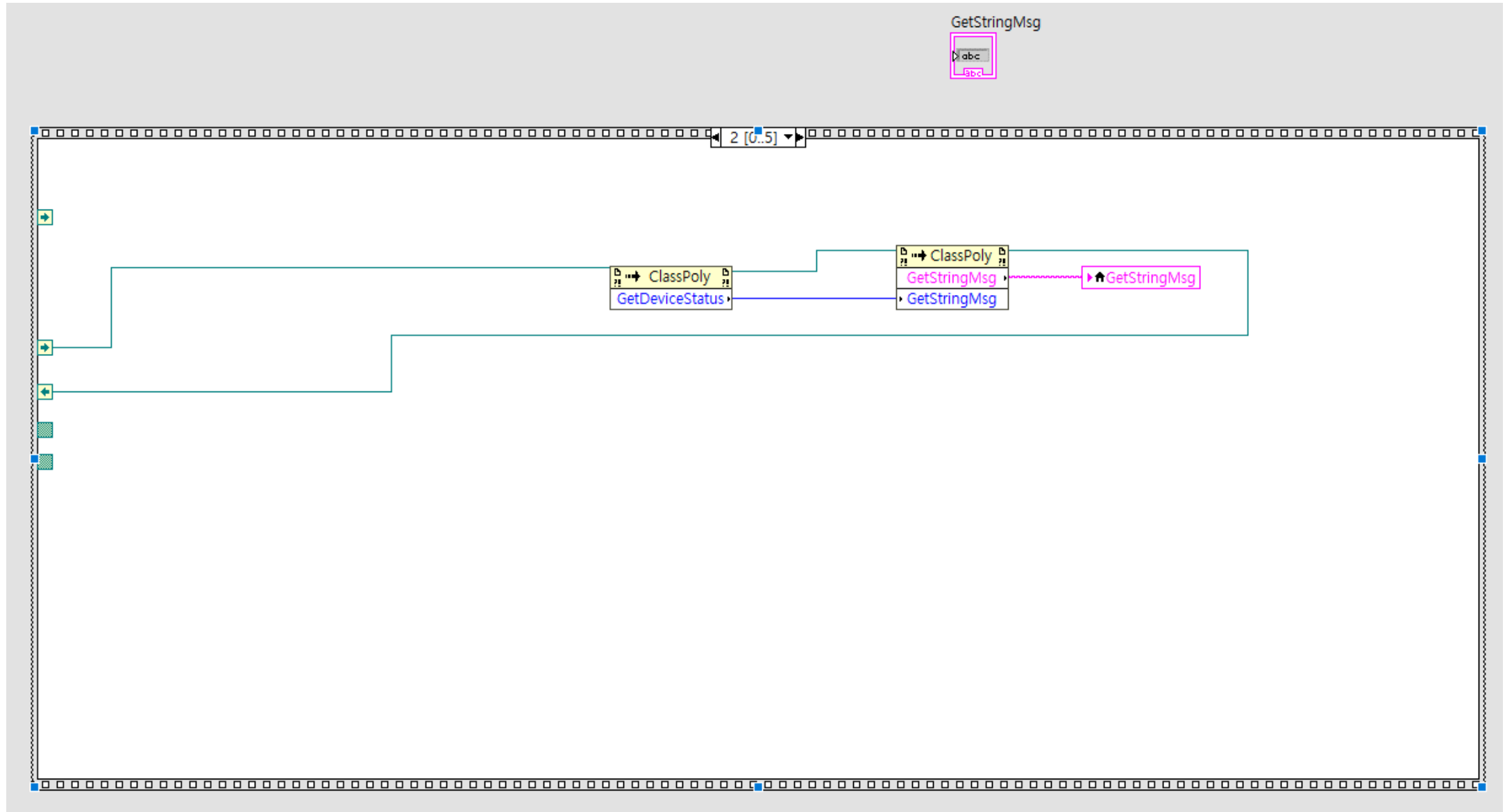
Overall flow

Overall flow of Labview

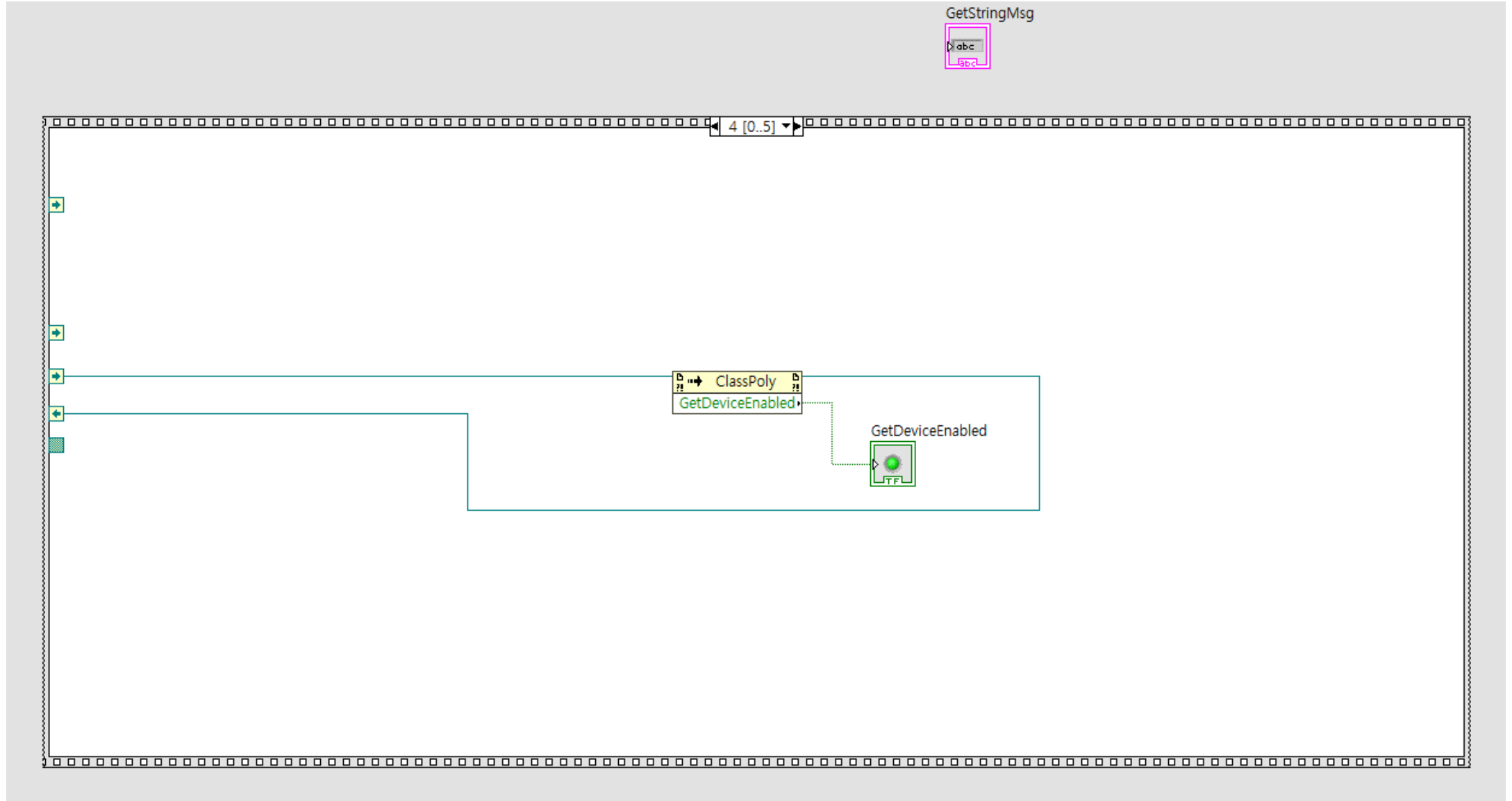




GetDeviceStatus



GetDeviceEnabled



SetWavelength

GetStringMsg



5 [0..5]

