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Optics Focus Instruments Co., Ltd.

# Functions Reference

ActiveX Control for Monochromator 7ISW Series

## Table of Contents

<b>Monochromator.....</b>	<b>3</b>
Properties.....	3
1. IntComUsing.....	3
2. BlnConnectStatus.....	3
3. BlnBusy.....	3
4. StrSpecNo .....	4
5. IntSpecType .....	4
6. IntSpecGratingCounts.....	4
7. LngSpecTotalSteps.....	4
8. IntGratingLineCounts(i).....	5
9. LngGratingBlazeWaveL(i) .....	5
10. BlnGratingStatus(i).....	5
11. DbIGratingEmendations(i).....	5
12. LngGratingZeroPos(i).....	6
13. IntRunSpeed .....	6
14. DbICurrentWaveL .....	6
15. IntCurrentGrating.....	6
16. StrEdition .....	7
17. IntLanguage .....	7
18. IntDoubleOutStatus .....	7
19. LngDoubleOutAnchor .....	7
20. LngDoubleOutCurPos .....	7
21. DbIGratingChangeWaveL(i).....	8
Functions.....	8
1. SpecOpen .....	8
2. SpecClose.....	8
3. ReAnchor.....	8
4. StartRun.....	9
5. StopRun.....	9
6. ChangeGrating.....	9
7. ChangeRunSpeed .....	9
8. ChangePowerOnWaveL.....	10
9. RefreshPosition .....	10
10. DbIPosToWaveL .....	10
11. ShowRunFace .....	11
12. ShowParaFace .....	11
13. SetTabEnalbed .....	11
14. ChangeDoubleOutExport.....	11
15. MoveDoubleOutPos.....	11

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<b>Filter Wheels.....</b>	<b>12</b>
Properties.....	12
1. IntFilterCounts.....	12
2. IntFilterCurrentCounts.....	12
3. DbFilterStartWavelen(j).....	12
4. IntFirstFilterZeroPos.....	13
Functions.....	13
1. SetFilterStatus .....	13
2. SetFilterStartWavelen .....	13

Please register 7ISWU.ocx file by selecting Start»Run as administrator and typing in regsvr32 followed by the full path to the .ocx file. (for example, regsvr32 c:\7ISWU.ocx)

Please select ISWU.SpecRunFull from the ActiveX Object list when you insert the ActiveX Object.

## Monochromator

### Properties

#### 1. IntComUsing

Read only

Type: integer

Description: The serial port number that is opened by control SpecRun. It is defined by the parameter in method SepcOpen.

VB6 Example:

```
Dim ComNO as integer
```

```
ComNO=SpecRun1.IntComUsing
```

#### 2. BlnConnectStatus

Read only

Type: boolean

Description: The connection status of specified serial port. True is successful. False is failed.

VB6 Example:

```
If SpecRun1.BlnConnectStatus then
```

```
    Call MsgBox("Communication succeeded", vbInformation, "")
```

```
Else
```

```
    Call MsgBox("Communication failed", vbInformation, "")
```

```
End if
```

#### 3. BlnBusy

Ready only

Type: boolean

Description: The busy status of the serial port communication. True is busy. False is free.

VB6 Example:

```
If SpecRun1.BlnBusy then
```

---

```
Call MsgBox("Serial port is busy", vbInformation, "")  
Else  
    Call MsgBox("Serial port is free", vbInformation, "")  
End if
```

#### 4. StrSpecNo

Read only  
Type: string  
Description: The series number of spectrometer.  
VB6 Example:  
*Dim strNO as String*  
*strNO=SpecRun1.StrSpecNo*

#### 5. IntSpecType

Read only  
Description: The model number of the spectrometer.

#### 6. IntSpecGratingCounts

Read only  
Type: integer  
Description: The numbers of grating that can be mounted into spectrometer.  
VB6 Example:  
*Dim intGCounts as Integer*  
*intGCounts=SpecRun1.IntSpecGratingCounts*

#### 7. LngSpecTotalSteps

Read only  
Type: long  
Description: The total steps of motor moves when the grating mount rotates one round.

## 8. IntGratingLineCounts(i)

Read only

Type: integer

Description: The number of engraved lines for NO. i+1 grating. i=0, 1, 2.

VB6 Example:

*Dim intLineC as Integer*

*intLineC=SpecRun1.IntGratingLineCounts(0) 'the engraved line number for NO.1 grating*

## 9. LngGratingBlazeWaveL(i)

Read only

Type: long

Description: The blaze wavelength of NO. i+1 grating. i=0, 1, 2.

VB6 Example:

*Dim lngBlazeW as Integer*

*intLineC=SpecRun1.LngGratingBlazeWaveL(0) 'the blaze wavelength for NO.1 grating*

## 10. BlnGratingStatus(i)

Read only

Type: boolean

Description: If the value is True, it means NO. i+1 grating has been installed and its parameters are valid.  
If the value is False, it means NO. i+1 grating has not been installed and its parameters are invalid.

VB6 Example:

*If SpecRun1.BlnGratingStatus(1) then*

*Call MsgBox("NO. 2 grating has been installed", vbInformation, "")*

*Else*

*Call MsgBox("NO.2 grating has not been installed", vbInformation, "")*

*End if*

## 11. DblGratingEmendations(i)

Read only

Type: double

Description: The correction factor for each grating. i =0, 1, 2.

VB6 Example:

*Dim dblGratingEmendations(2) as double*

*dblGratingEmendations(0)=SpecRun1.DblGratingEmendations (0) 'the correction factor of first grating.*

## 12. LngGratingZeroPos(i)

Read only

Type: long

Description: The zero position of NO.i+1 grating. i=0, 1, 2.

VB6 Example:

*Dim lngZeroPos as Long*

*lngZeroPos=SpecRun1.LngGratingZeroPos(0) 'the zero position of first grating.*

## 13. IntRunSpeed

Read only

Type: integer

Description: Its value can be changed by method ChangeRunSpeed. The running speed of spectrometer. The value range is from 1 to 255.

VB6 Example:

*Dim intSpeed as Integer*

*intSpeed=SpecRun1.IntRunSpeed*

*Call MsgBox("the current speed of spectrometer is " & intSpeed, vbInformation, "")*

## 14. DblCurrentWaveL

Read only

Type: double

Description: The current wavelength of spectrometer.

VB6 Example:

*Dim dblWaveL as Double*

*dblWaveL=SpecRun1.DblCurrentWaveL*

*Call MsgBox("the current wavelength of spectrometer is " & dblWaveL & "nm", vbInformation, "")*

## 15. IntCurrentGrating

Read only

Type: integer

Description: The number of current grating is being used. The value range is from 1 to 3.

VB6 Example:

*Dim intGrating as Integer*

*intGrating=SpecRun1.IntCurrentGrating*

*Call MsgBox("the current grating is NO." & intGrating & "grating", vbInformation, "")*

## 16. StrEdition

Read only

Type: string

Description: The version of ActiveX control SpecRun.

## 17. IntLanguage

Read only

Description: Set the current language. 0 is Chinese, 1 is English.

## 18. IntDoubleOutStatus

Read only

Description: Get the current status of the dual output ports. 0 is NO.0 output port. 1 is the NO.1 output port. 2 is neither NO.0 nor NO.1 output port.

## 19. LngDoubleOutAnchor

Read only

Description: Get the position of NO.1 output port.

## 20. LngDoubleOutCurPos

Read only

Description: Get the position of dual output ports.



## 21. DblGratingChangeWaveL(i)

Read only

Type: Double

Description: Get the switching wavelength of the NO.i+1 grating. i=0,1,2

VB6 Example:

*Dim DblGratingChangeWaveL as Double*

*DblGratingChangeWaveL =SpecRun1. DblGratingChangeWaveL(0) 'the switching wavelength of NO.1 grating.*

## Functions

### 1. SpecOpen

Define: Sub SpecOpen(Byval ComUsing As Integer)

Description: Connect and communicate with computer and initialize the properties of control SpecRun according to the communication status.

Parameter: ComUsing means the serial port of the computer.

VB6 Example:

*Call SpecRun1.SpecOpen(1)*

### 2. SpecClose

Define: Sub SpecClose()

Description: Close the serial port.

VB6 Example:

*Call SpecRun1.SpecClose*

### 3. ReAnchor

Define: Sub ReAnchor()

Description: Reset the spectrometer.

VB6 Example:

*Call SpecRun1.ReAnchor*

#### 4. StartRun

Define: Sub StartRun(ByVal dblTargetWaveL As Double)

Description: Move to the specified wavelength.

Parameters: dblTargetWaveL is the wavelength, unit is nm.

VB6 Example:

*Call SpecRun1.ChangeGrating(2) 'switch to NO.2 grating*

*Call SpecRun1.StartRun(632.80) 'move to 632.80nm wavelength*

#### 5. StopRun

Define: Sub StopRun()

Description: Stop the running of spectrometer. The stopping is not allowed during grating switching and resetting.

VB6 Example:

*Call SpecRun1.StopRun*

#### 6. ChangeGrating

Define: Sub ChangeGrating(ByVal Grating As Integer)

Description: Change the current grating to the specified grating.

Parameters: Grating is the number of grating. Its value is 1, 2 or 3.

VB6 Example:

*Call SpecRun1.ChangeGrating(3) 'change to NO.3 grating*

#### 7. ChangeRunSpeed

Define: Sub ChangeRunSpeed(ByVal Speed As Integer)

Description: Change the speed of spectrometer.

The speed of grating mount ( $^{\circ}/s$ )  $= (32 + 78 \times \text{speed}) \times 360 / \text{lngSpecTotalSteps}$

Parameters: Speed means the speed level of spectrometer. Its range is from 1 to 255.

VB6 Example:

*Call SpecRun1.ChangeRunSpeed(250)*

## 8. ChangePowerOnWaveL

Define: Sub ChangePowerOnWaveL(ByVal PowerOnMode As Integer, ByVal WaveL1 As Double, ByVal WaveL2 As Double, ByVal WaveL3 As Double, ByVal PowerOnGratingNO As Integer, PowerOnWaveL As Double)

Description: Change the initial wavelength and the switching wavelength for each grating.

Parameters:

- (1) The value of PowerOnMode is 0 or 1. 0 means when the spectrometer is power on, it will move to the wavelength before the spectrometer is power off last time. 1 means when the spectrometer is power on, it will move to the specified wavelength that is specified by parameters PowerOnGratingNO and PowerOnWaveL.
- (2) WaveL1, WaveL2 and WaveL3 separately represents the switching wavelength for NO.1, NO.2 and NO.3 grating. If the grating doesn't exist, please replace this parameter with 0.
- (3) PowerOnGratingNO and PowerOnWaveL separately specifies the grating number and wavelength when the spectrometer is power on. Please set these two parameters to 1 and 0 separately if you want to set the last wavelength as the power-on wavelength.

VB6 Example:

*Call ChangePowerOnWaveL(1,0,436.8,632.8,2,300)*

'The power-on wavelength is set to 300nm of NO.2 grating. The switching wavelength for NO.1, NO.2 and NO.3 grating is separately 0nm, 436.8nm and 632.8nm.

*Call ChangePowerOnWaveL(0,0,100,200,1,0)*

'The power-on wavelength is set to the last wavelength before the spectrometer is power off. The switching wavelength for NO1, NO2 and NO.3 grating is separately 0nm, 100nm and 200nm.

## 9. RefreshPosition

Define: Sub RefreshPosition()

Description: Refresh the grating number, the current wavelength, the status of dual output ports and the current output port.

## 10. DbIPosToWaveL

Define: Function DbIPosToWaveL(ByVal intGratingNO As Integer, ByVal lngPos As Long) As Double

Description: Change the steps of specific grating to wavelength.

## 11. ShowRunFace

Define: Sub ShowRunFace()

Description: Show the main interface.

VB6 Example:

*Call SpecRun1.ShowRunFace*

## 12. ShowParaFace

Define: Sub ShowParaFace()

Description: Show the parameters interface

VB6 Example:

*Call SpecRun1.ShowParaFace*

## 13. SetTabEnalbed

Define: SetTabEnabled(isTrue As Boolean)

Description: Set the parameter tab of dual output ports to be enabled.

## 14. ChangeDoubleOutExport

Define: Sub ChangeDoubleOutExport (ByVal Index As Integer)

Description: Choose the output port.

Parameters:

Index=0 is NO.0 output port.

Index=1 is NO.1 output port.

VB6 Example:

*Call SpecRun1.ChangeDoubleOutExport(1)*

## 15. MoveDoubleOutPos

Define: Sub MoveDoubleOutPos (ByVal lngPos As Long)

Description: Move the dual output ports to specific position.

## Filter Wheels

### Properties

#### 1. IntFilterCounts

Read only

Type: integer

Description: The filter numbers that can be mounted on the filter wheel. The value range is from 1 to 8.

VB6 Example:

```
Dim intData as Integer
```

```
intData=SpecRun1.IntFilterCounts
```

```
Call MsgBox("the current filter wheel can install" & intData & "filters", vbInformation, "")
```

#### 2. IntFilterCurrentCounts

Read only

Type: integer

Description: The current filter numbers that has been mounted on the filter wheel. The value range is from 1 to the filter numbers that can be mounted. The values of IntFilterCurrentCounts and IntFilterCounts are usually set same. Please refer to method of filter wheel.

VB6 Example:

```
Dim intData as Integer
```

```
intData=SpecRun1.IntFilterCurrentCounts
```

```
Call MsgBox("the current filter wheel has installed" & intData & "filters", vbInformation, "")
```

#### 3. DbFilterStartWavelen(j)

Read only

Type: double

Description: It can be changed by method SetFilterStartWavelen. The working wavelength for each filter. j=0, 1, 2, 3, 4, 5, 6, 7. It separately represents NO.1, NO.2, NO.3, NO.4, NO.5, NO.6, NO.7 and NO.8 filter.

Example:

The number of filters can be mounted on the filter wheel is 6.

```
DbFilterStartWavelen (0)=100
```

```
DbFilterStartWavelen (1)=200
```

DbFilterStartWavelen (2)=300

DbFilterStartWavelen (3)=400

DbFilterStartWavelen (4)=500

DbFilterStartWavelen (5)=600

When using NO.1 grating and the wavelength is 0-100nm, the filter wheel will automatically rotate to NO.1 filter. If the wavelength is 100-200nm, the filter wheel will automatically rotate to NO.2 filter.

Note: when the wavelength exceeds the wavelength range of NO.6 filter, the filter wheel will stop at the position of NO.1 filter.

#### 4. IntFirstFilterZeroPos

Read only

Type: integer

Description: Its value can be changed by method SetRealyZeroPos. This method will match the position of filter and the mechanical output port of filter wheel.

### Functions

#### 1. SetFilterStatus

Define: Sub SetFilterStatus(ByVal intStatus As Integer)

Description: Enable or not enable the filter wheel.

Parameters: The value of intStatus is 0 or 1. 0 means to not enable the filter wheel. 1 means to enable the filter wheel.

VB6 Example:

*Call SpecRun1.SetFilterStatus(0)*

#### 2. SetFilterStartWavelen

Define: Sub SetFilterStartWavelen(ByVal UsingFilterCounts As Integer, StartWaveLength() As Double)

Description: Set the upper limit of the wavelength for each filter.

Parameters:

(1) UsingFilterCounts: The numbers of filter that will be used. It should be set as the numbers of filter that can be mounted on the filter wheel.

(2) StartWaveLength: The upper limit of working wavelength for NO.1 to NO.8 filters.

VB6 Example:

*Call SpecRun1.SetFilterStartWavelen(3,dblStartWavelen())*