iXblue

MBC DG GUI

MBC INTERFACE

User Manual
Version 2.6

iXblue

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Interface - Introduction

Photline proposes a graphical user interface to simplify bias control management for the ModBox and MBC products family. Based on a RS232 serial communication and a Visual Basic® interface, bias parameters are strictly similar also whole bias control are tunable and could be saved and loaded.

Interface - Setup

Minimum Computer Requirements

- Processor 1 GHz with 512MB RAM
- Disk space (minimum) 32-bit : 600 MB 64-bit: 1.5 GB
- Windows XP Professional SP3
- One USB port for each MBC to drive.

Software installation

1/ Log on with an administrator account.
2/ Insert the Photline CD-ROM into the CD drive or plug the USB key.
3/ Install setup.exe (system restart maybe required)
4/ Install USB MBC Drivers (if needed)
5/ Run MBC DG Control.exe file

Hardware Setup

1. Connect USB cable to the controller rear panel and the PC
2. Plug the power cable and switch on the device.
3. USB MBC connexion will be seen as COM peripheral by your PC
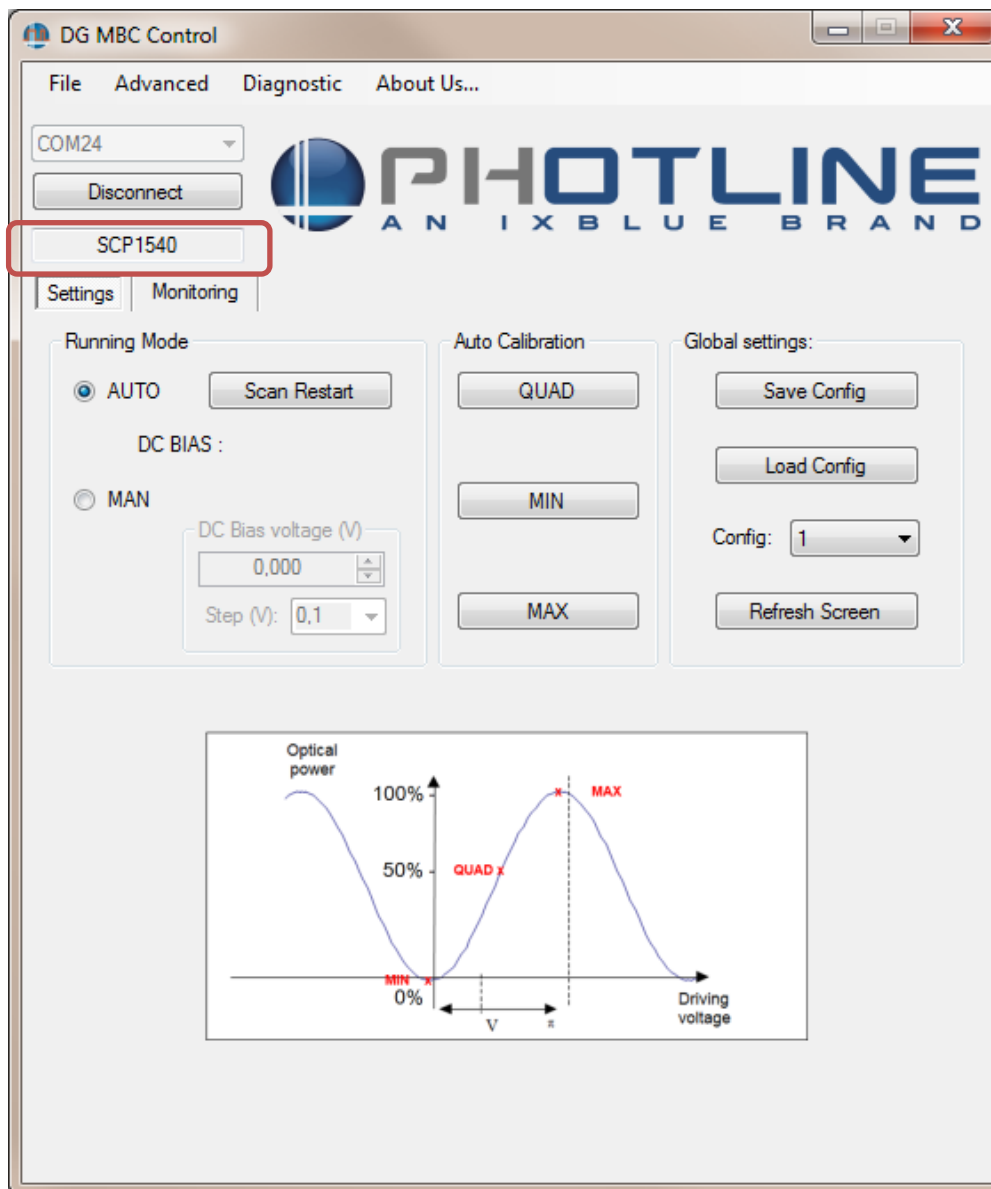
Interface - Operation

General considerations

One needs to choose the COM port. To proceed, click on the down arrow of the list box and select the COM port connected to the controller.
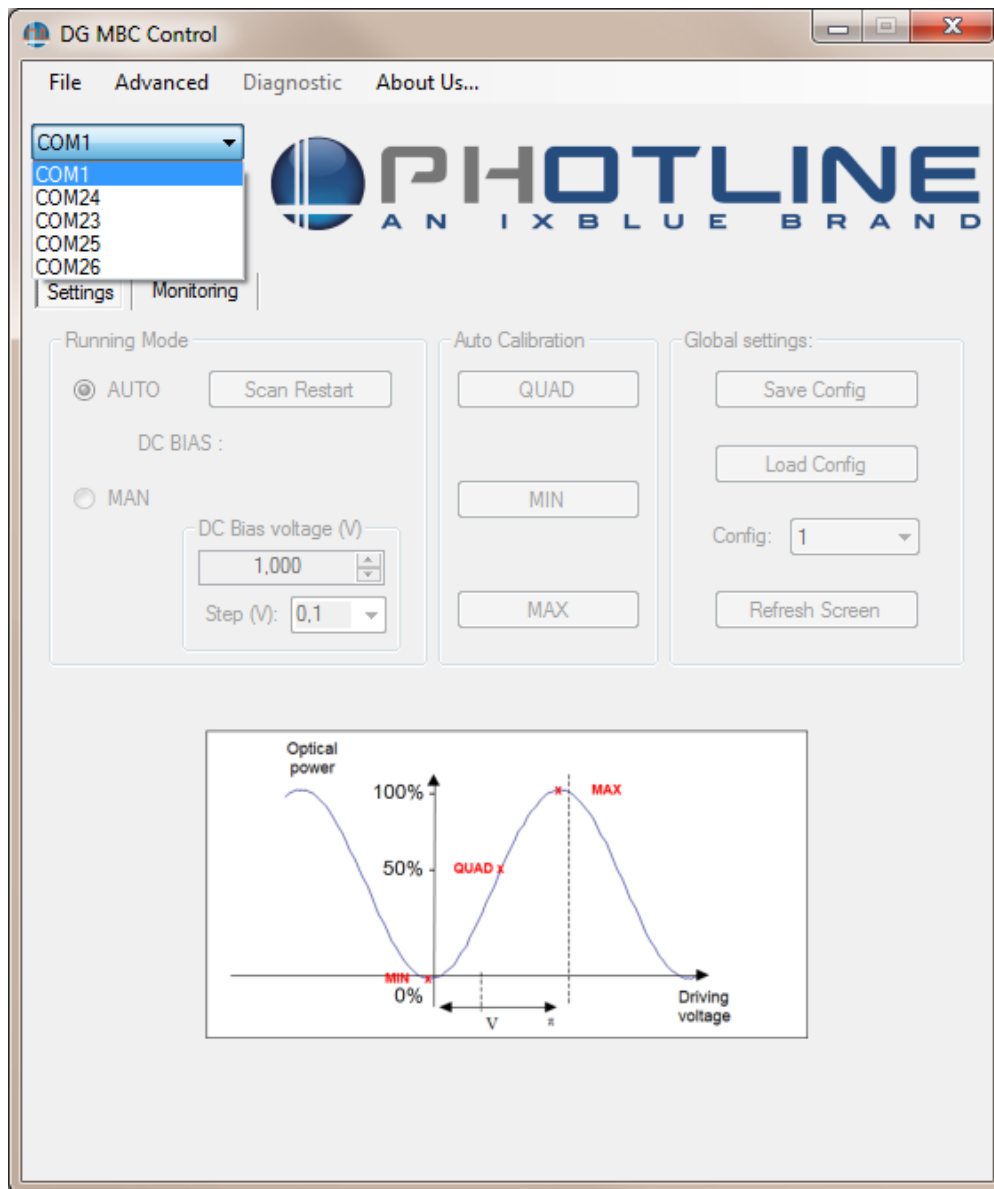
After selecting your port, click on "Connect" to obtain your S/N number and activate the rest of the interface.

Once done, the MBC serial number will be displayed.

Setting bias control parameters
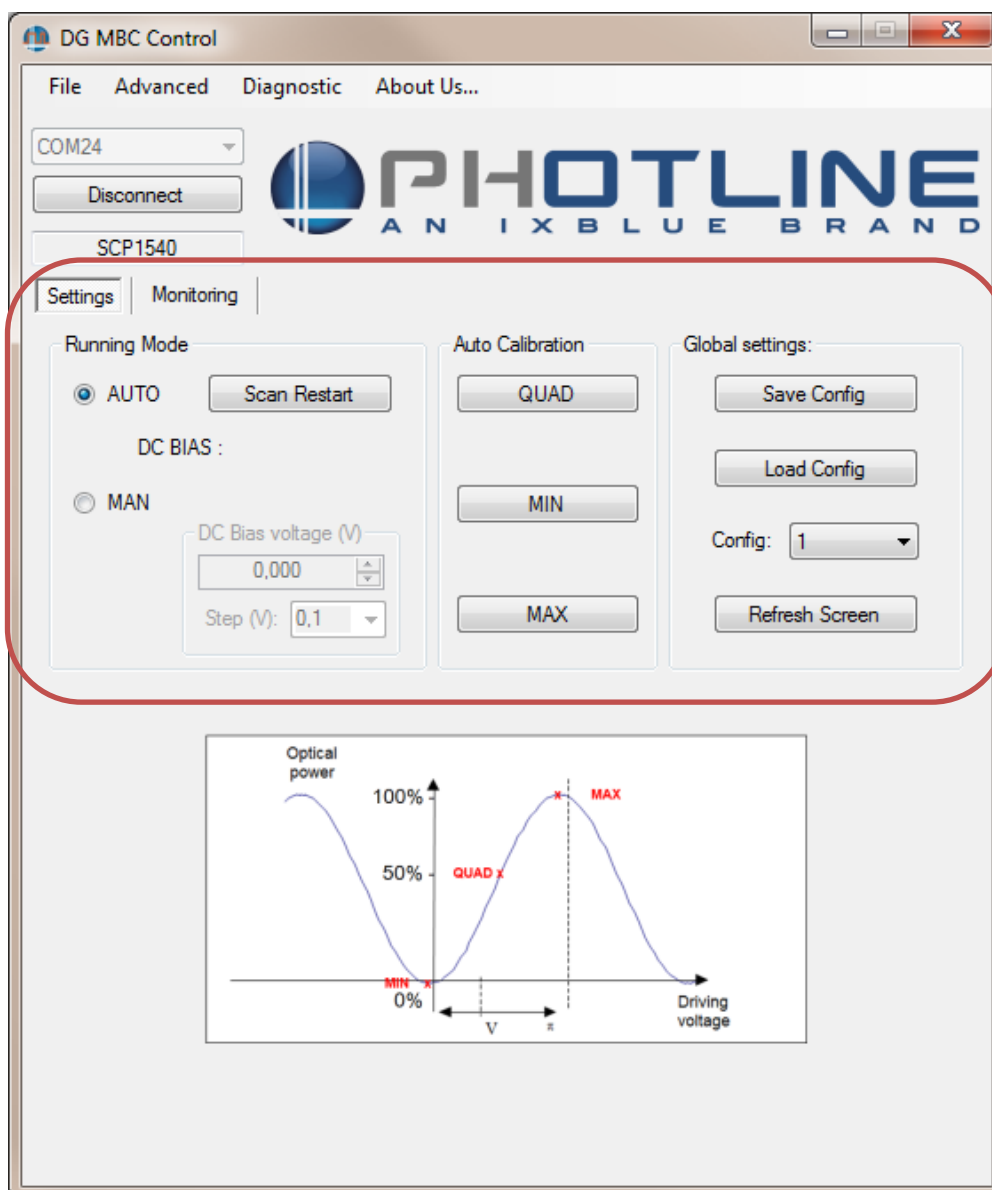
- Standard Mode:

Figure 1: Bias control standard parameters

Auto-Calibration button: A scan of the system is performed in order to find the right MBC parameters for the 3 most used setting points: QUAD, MIN, MAX. (see Annexe for details)

Scan Restart button: The bias control routine is reinitialised. This is recommended to restart the feedback control when some parameters have been changed (Dither amplitude, Dither frequency, Photodiode gain).

Refresh Screen button: Application reloads all parameters from the board.

Save Config button: Current configuration is saved in one of the 3 configuration area. (Config 1-3).

Load Config button: Selected configuration is loaded into MBC (Config 1-3).
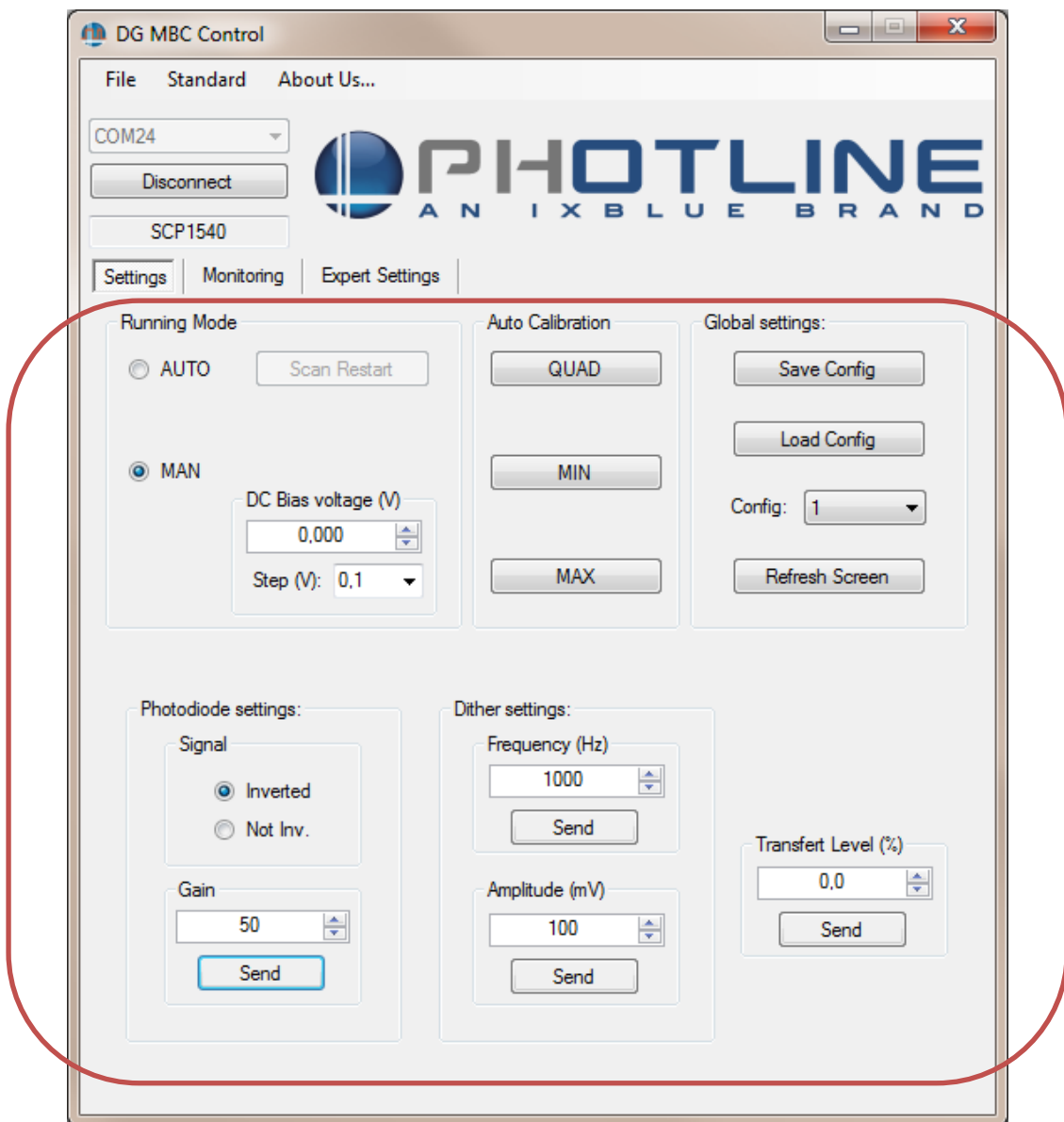
- Advanced Mode:

Figure 2: Bias control advanced parameters

Running Mode	: Auto / Manual
DC Bias Voltage	: From –10 to +10V (variable step)
Transfer Level	: From –100% to +100% (0.1% step)
Dither Frequency	: From 400 to 1400Hz (40Hz step)
Dither Amplitude	: From 10 to 1000mV (typically 10mV step)
Photodiode Polarity	: Inverted or Non Inverted (Non Inv.)
Photodiode Gain	: From 1 (Low) to 127 (High)

After setting a value, it has to be validated with "Send" button.
The validation is effective only when "Send" button restore its initial colour.

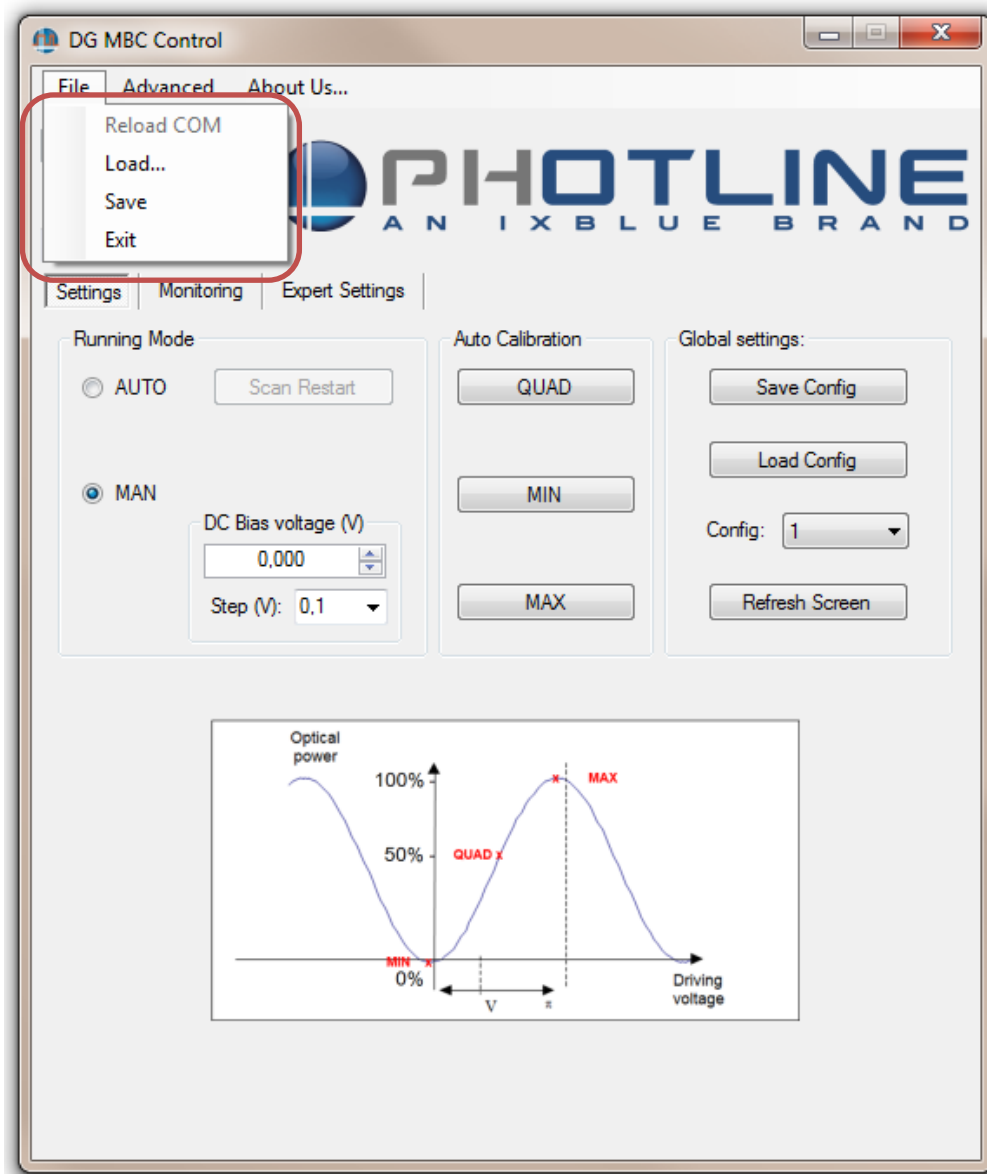## Saving and loading bias control parameters

Figure 3 : bias control parameters save and load buttons

Save : All bias control parameters are saved in a file for further loading. The user specifies the file name and its path through a dialog box.

Load button : All bias control parameters are loaded from a file specified by the user in a dialog box.

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Code APE 2651B - N° TVA Intra. FR 09 433 185 121
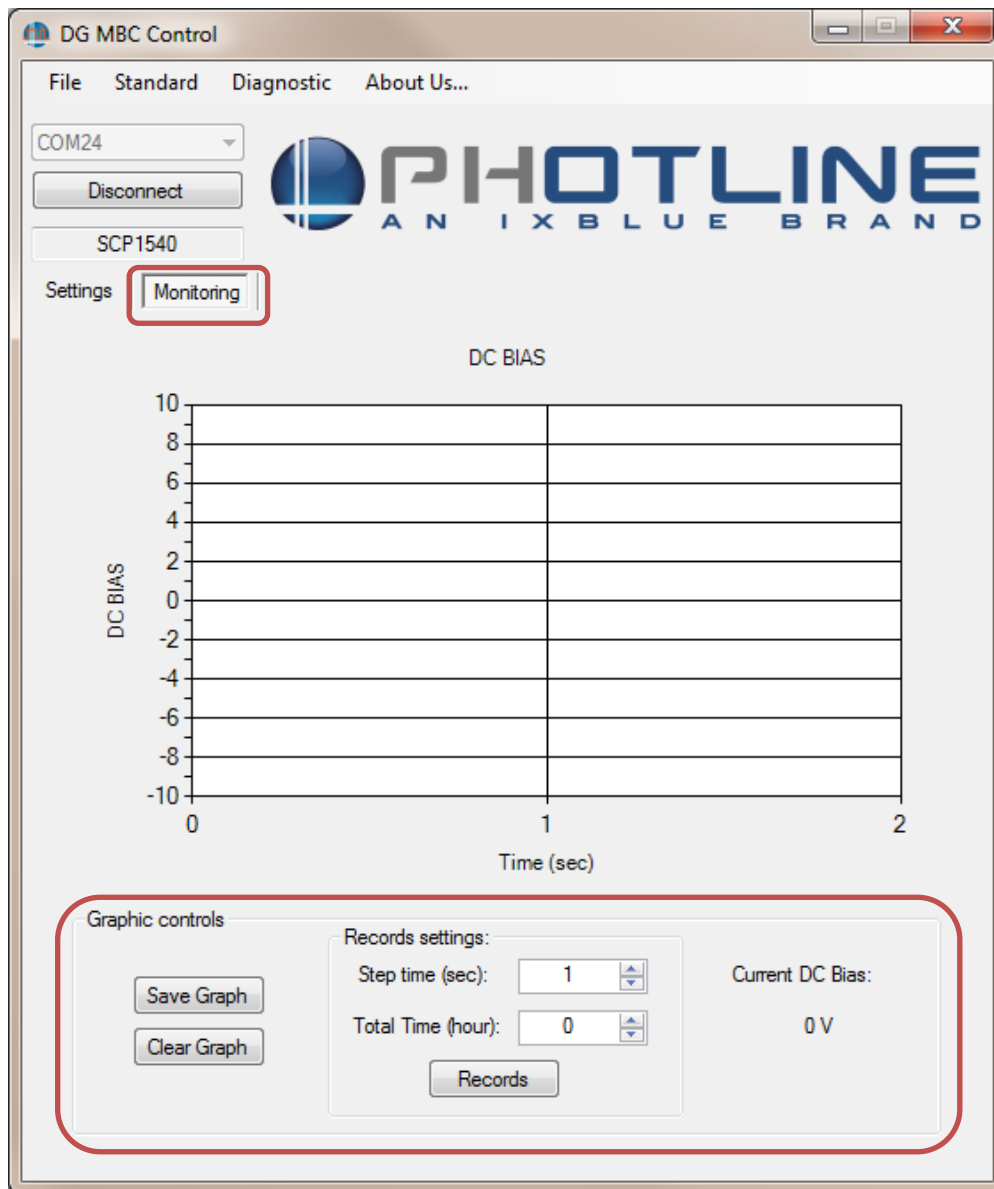
Bias monitoring

Figure 4: bias monitoring control

DC bias is always monitored, you can clear or save the graph.

The *Records* function allows saving a measure with a specific step time. It saves in a text file, time and DC bias value.
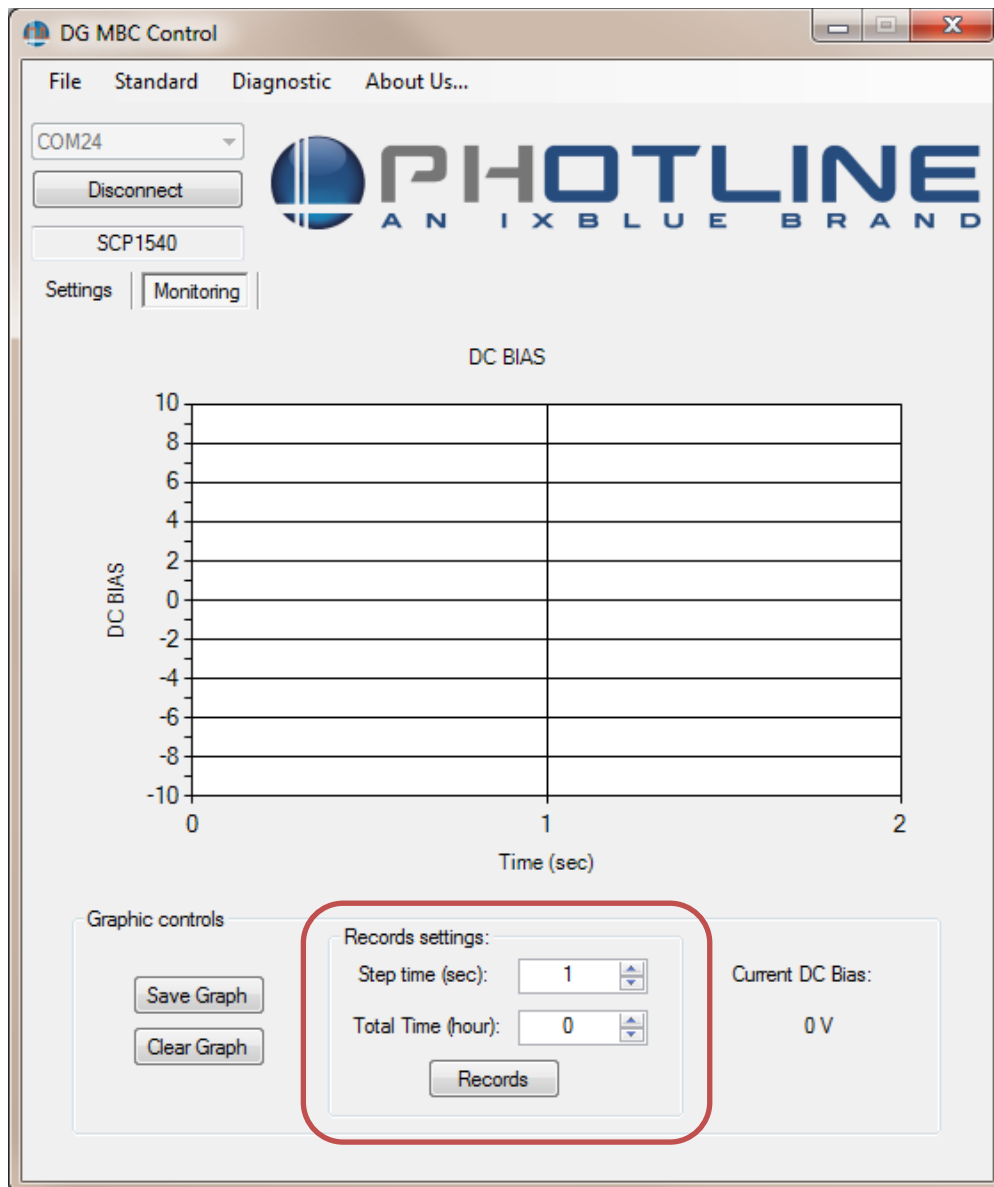

Figure 5 : start recording bias values

The "*Record*" button starts the bias recording procedure.

First step:
Set the time interval between each record with "Step Time" and the record duration with "Total Time" in hour. "Total time" at 0 means recording until "Stop" button is pressed.
Second step:
Press "Records" button and a dialog box appear to set the file name and destination folder.
Third step:
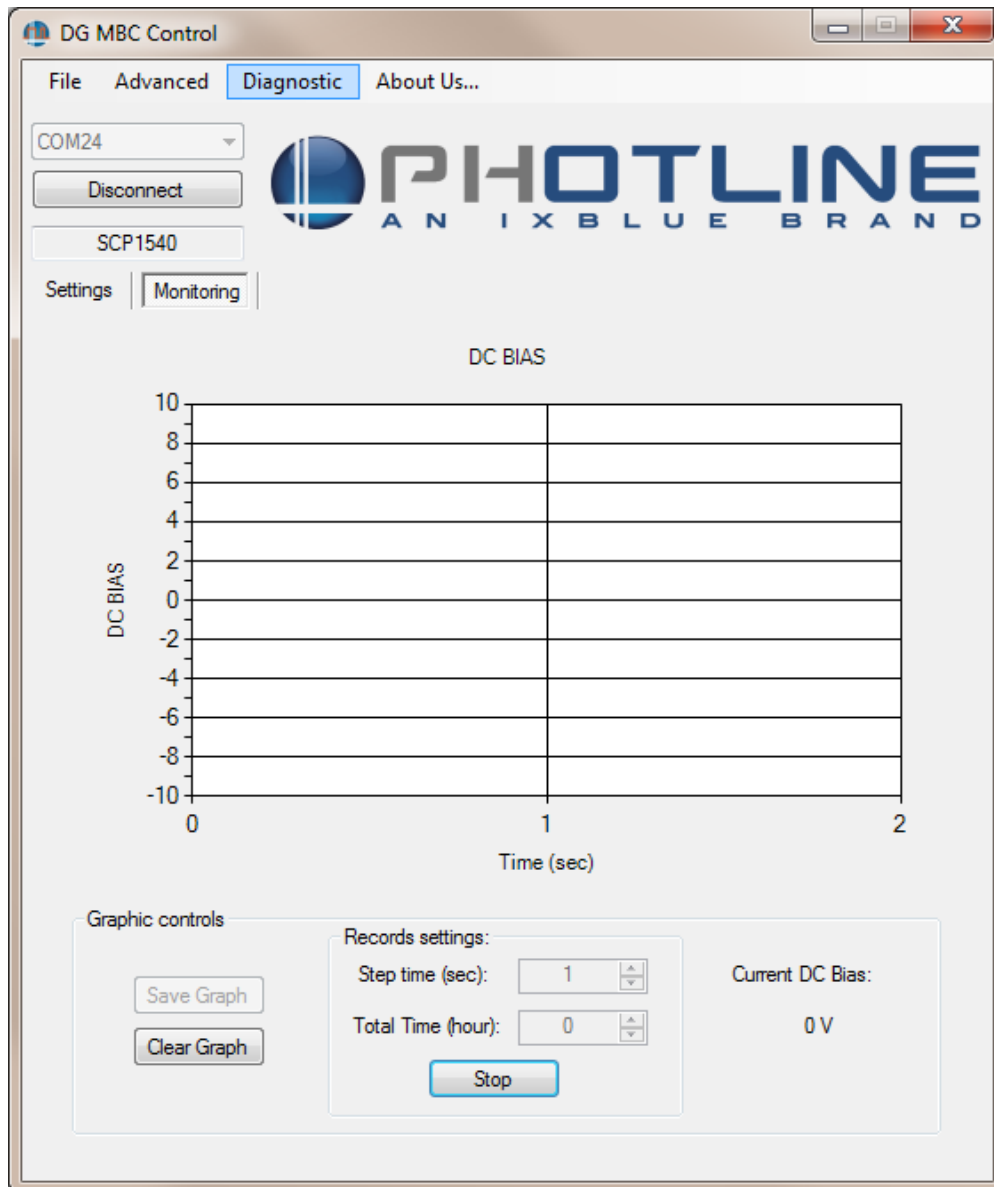Press "Save" button in the dialog box to launch record procedure.

Figure 6 : stop recording bias values

At any time it is possible to stop the record procedure by clicking on the "Stop" button (See Figure 6).
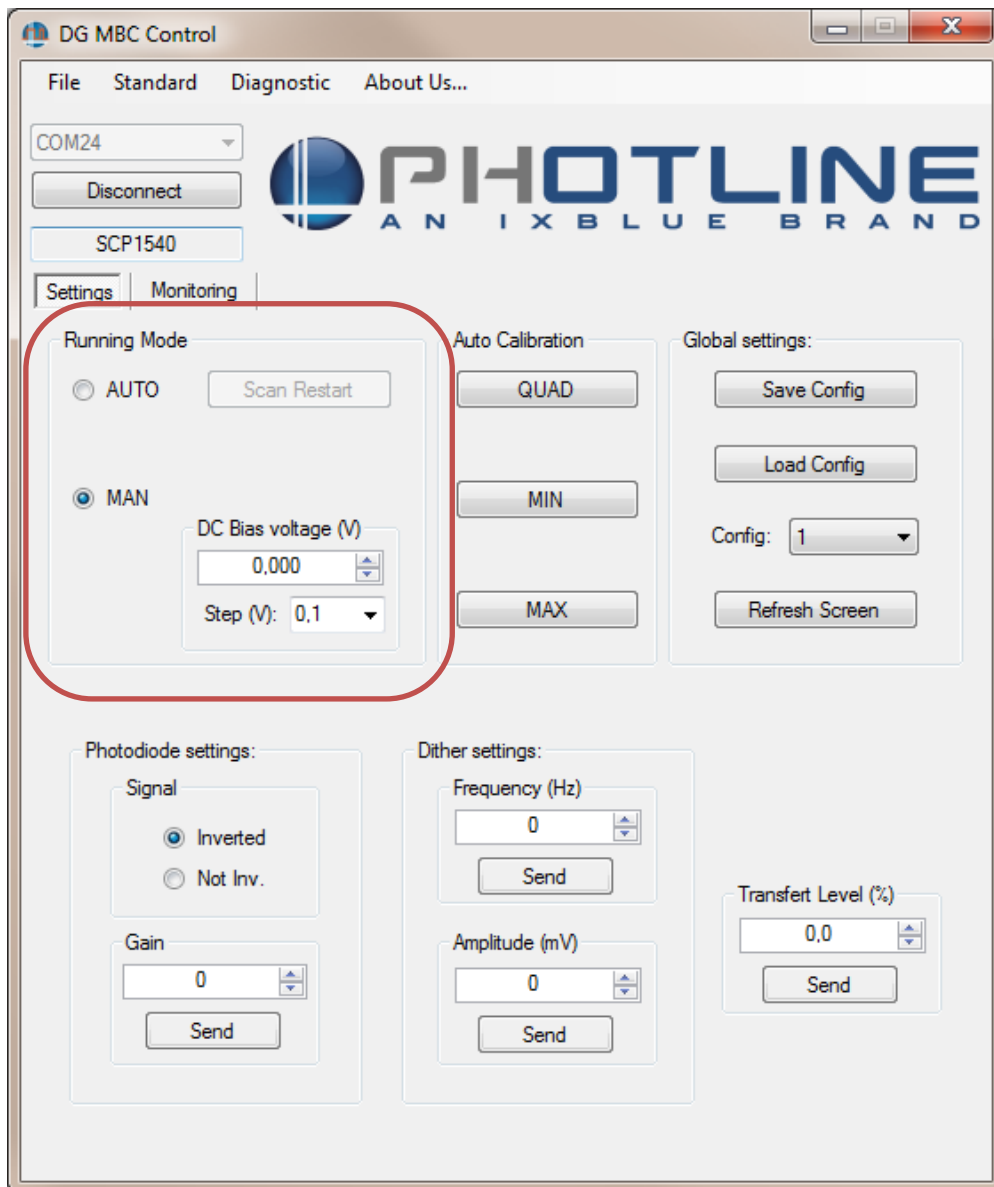
figure 7 :bias control in manual mode

In Manual Mode, the Bias control works as a DC voltage source. The applied bias is adjusted by decreasing / increasing the "*DC Bias Voltage*" (See Figure 7). It is also possible to change the step.

Diagnostic:

Diagnostic is a function which is used by our support team. It will help us understand and see what can be your feedback loop problem. Click on *Diagnostic* and enter the Password: "trepxe".

figure 8 :bias control in manual mode

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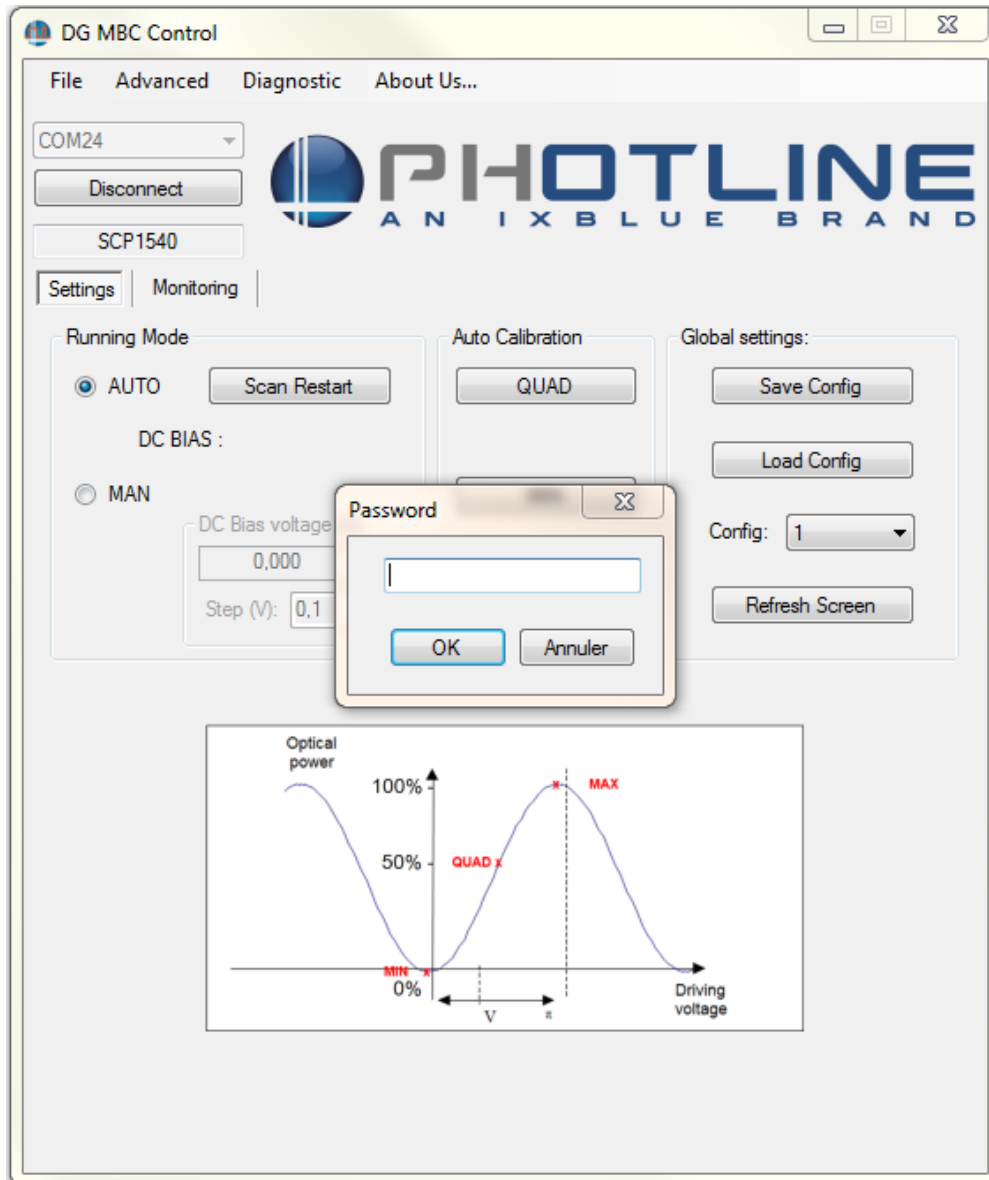
You obtain a new tab:

figure 9 :bias control in manual mode

Click on tab diagnostic and send an email to us with the diagnostic file.

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Auto calibration step:

Step	Quad	Min / Max
1	Apply a dither of 120mV	Apply a dither of 120mV
2	Do a scan to detect DC Vπ	Do a scan to detect DC Vπ
3	Dither is set to 3% of Vπ	Dither is set to 3% of Vπ
4	Set modulator to Quad point	Set modulator to Quad point
5	Increase Photodiode Gain until obtaining a value of 2Vpp on our ADC. Photodiode Gain is limited to 120	Increase Photodiode Gain until obtaining a value of 2Vpp on our ADC Photodiode Gain is limited to 120
6	Do a Scan	Set the dither to 0.25% of Vπ
7	Board is locked to Quad Point	Do a Scan
8		Board is locked to Min or Max Point

If the feedback loops oscillate, you can reduce the Photodiode Gain in order to stabilize the loop (reducing from 5 to 20 is generally enough).