JGR
optics

MS05B/MS08B Mainframe

User Manual

TABLE OF CONTENTS

1

COMPLIANCE

CSA / IEC Compliance

The unit complies with certain standards of the Canadian Standards Association (CSA) and the International Electrotechnical Commission (IEC).

The unit falls in the Installation Category (Overvoltage Category) II under IEC 664. IEC 664 relates to impulse voltage levels and insulation coordination. The particular category is defined as: local level, appliances, portable equipment, etc, with smaller transient overvoltages than Installation Category (Overvoltage Category) III.

The unit falls in the Pollution Degree 2 category under IEC 1010-1 and CAN/CSA-C22.2 No. 1010.1. The IEC standard on Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use relates to insulation coordination. The CSA standard is on Safety Requirements for Electrical Equipment for Measurement Control, and Laboratory Use, Part I: General Requirements. The Pollution Degree 2 category is defined as follows: "Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected."

$C\boldsymbol{\epsilon}$ Compliance

Electronic test equipment is subject to the EMC Directive in the European Union. The EN61326 standard prescribes both emission and immunity requirements for laboratory, measurement, and control equipment. This unit has undergone extensive testing according to the European Union Directive and Standards.

FCC Certification

15.19(a)(3) All devices

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2

GENERAL INFORMATION

MS05B Overview

The MS05B is a compact modular platform compatible with MS12 and MS7 modules and MS12001 software for insertion loss and return loss testing. The MS05B allows both single-mode and multimode testing within a single station.

Figure 1: MS05B Mainframe with MS modules

The MS05B mainframe is designed to work with any external computer meeting the minimum requirements of Table 1. It communicates with the computer using an included PCI card to either Windows 8, Windows 7 or Windows XP.

MS08B Overview

The MS08B is similar to the MS05B above but offers eight (8) module slots instead of five (5) provinding an effective solution for multi-wavelength and multi-fiber testing.

Figure 2: MS05B Mainframe with MS modules

The MS08B mainframe is also designed to work with any external computer meeting the minimum requirements of Table 1. Like the MS05B, it communicates with the computer using an included PCI card to either Windows 8, Windows 7 or Windows XP.

Table 1: Minimum computer requirements

Parameter	Specification
Operating system	32 bits, Windows 8, 7 or XP
Case size	Mid-tower
Motherboard	1 available PCIe slot
Hard drive	At least 40 GB free
Processor	2nd generation Intel i3 Core or higher
RAM	4 GB

Key Features

- 5 slot or 8 slot mainframe
- Controlled by an external computer
- Compact and benchtop
- Windows 8, 7 and XP compatible

Applications

- Component testing
- Ribbon fiber testing
- Simultaneous testing with multiple connector types
- Incoming inspection
- Quality assurance (QA) testing
- Single and multi-fiber testing

Accessories

- AC power cord
- PCIe card (if not already installed in computer)
- PCIe (USB) cable
- USB key with software installation kit (if not purchased with computer)
- User Manual

3

SAFETY INFORMATION

To avoid situations that could result in serious injuries or death, always observe the following precautions.

The safety instructions must be observed whenever the unit is operated, serviced, or repaired. Failure to comply with any of these instructions or with any precaution or warning contained in the User Manual is in direct violation of the standards of design, manufacturing, and intended use of the unit. JGR Optics assumes no liability for the customer's failure to comply with any of these safety requirements.

Safety Markings on the Unit

The following symbols and messages can be marked on the unit (see Table 2 below). Observe all safety instructions that are associated with a symbol.

Table 2: Safety Symbols

⚠	Laser radiation may be present. Refer to the User Manual for instructions on handling and operating the unit safely. Avoid looking into any ports near which this symbol appears.
⏚	Frame or chassis terminal for electrical grounding within the unit.
⏚	Protective conductor terminal for electrical grounding to the earth.
WARNING	Procedure can result in serious injury or loss of life if not carried out in proper compliance with all safety instructions. Ensure that all conditions necessary for safe handling and operation are met before proceeding.
CAUTION	Procedure can result in serious damage to or destruction of the unit if not carried out in compliance with all instructions for proper use. Ensure that all conditions necessary for safe handling and operation are met before proceeding.

Laser Safety

The MS05B and MS08B Mainframes do not include laser components. However, MS modules may do so. Refer to specific MS modules' user guides for further laser safety details and instructions.

Important Safety Information

Laser Hazards

	Warning
⚠	Never look into the end of an optical cable connected to an optical output device that is operating. Laser radiation is invisible, and direct exposure can severely injure the human eye.

Electrical Shock Hazards

	Warning
⚠	• Some of the circuits are powered whenever the unit is connected to the AC power source (line power). To ensure that all circuits are powered off, disconnect the power cord from either the power inlet on the unit's rear panel or from the AC line-power source (receptacle). The power cord must always be accessible from one of these points. If the unit is installed in a cabinet, the operator must be able to disconnect the unit from the line power by the system's line-power switch. • Use only the type of power cord supplied with the unit. If you need to replace a lost or damaged cord, make sure to replace with a power cord of the same type. • Connect the power cord only to a power outlet equipped with a protective earth contact. Never connect to an extension cord or any receptacle that is not equipped with this feature. • If using a voltage-reducing autotransformer to power the unit, ensure that the common terminal connects to the earthed pole of the power source. • Do not interrupt the protective earth grounding. Such action can lead to a potential shock hazard that can result in serious personal injury. Do not operate the unit if an interruption to the protective grounding is suspected.

	• Do not operate the unit when its cover or panels have been removed. • To prevent potential fire or shock hazard, do not expose the unit to any source of excessive moisture. • Do not use the unit outdoor. • Operating the unit in the presence of flammable gases or fumes is extremely hazardous. • If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. Only technicians authorized by JGR Optics should carry out the repairs. In addition to voiding the warranty, opening the unit (even when unplugged) can expose you to potential shock hazards. • Some of the unit's capacitors can be charged even when the unit is not connected to the power source. • Do not perform any operating or maintenance procedure that is not described in the User Manual.

4

GETTING STARTED

⚠	**Caution** To avoid injury or death, always observe the precautions listed in "SAFETY INFORMATION" section on page 6.

This manual contains complete operating instructions for safe and effective operation of the MS05B and MS08B Mainframes. It is recommended that users of the MS05B and MS08B familiarize themselves with contents of this manual before using the instrument.

The inspection report and a description of any customer-requested information may be found in the calibration document envelope included with the instrument.

Initial Inspection

⚠	**Warning** To avoid electrical shock, do not initialize or operate the unit if it bears any sign of damage. Ensure that the unit and any devices or cords connected to it are properly grounded.

☑ Inspect the package and contents for signs of damage.

☑ Ensure all contents are included:

➢ MS05B or MS08B Mainframe

➢ 1 AC power cord

➢ PCIe card (already installed in computer if purchased with computer)

➢ PCIe (USB) cable

➢ USB key with software installation kit (not included if purchased with computer, software is pre-loaded)

➢ User Manual

☑ Read the User Manual thoroughly, and become familiar with all safety symbols and instructions to ensure that the unit is operated and maintained safely.

☑ Keep the packaging.

☑ Immediately notify JGR Optics and, if necessary, the carrier if the content of the shipment is incomplete, if the unit or any of its components are damaged or defective, or if the unit does not pass the initial inspection.

Operational Requirements

In order for the unit to meet the warranted specifications, the operating environment must meet the following conditions for altitude, temperature, humidity, and voltage.

Table 3: Environmental Requirements

Parameter	Specification
Altitude	Up to 2000 m
Temperature	Range of 0 to 40 °C
Humidity	Up to 95% humidity (0 to 40 °C)
Voltage	Main supply voltage fluctuations must not exceed ±10% of the nominal voltage

Connecting the MS05B/MS08B to an External Computer

In order to use the MS05B/MS08B and operate the modules inserted in the mainframe, the MS05B/MS08B need to be connected to an external computer running Windows 8, 7 or XP. The MS05B/MS08B can be connected to the computer via the PCIe card and cable included with the unit.

All drivers and software required to run the MS05B/MS08B and MS12 modules are on the USB key included with the MS05B/MS08B platform.

PCIe Card Installation

As mentioned before, the MS05B/MS08B are designed to work with an external computer. Communication with the computer is done via a PCIe card and cable which need to be installed and configured if the system has been purchased without a pre-configured computer. Refer to figure 3 of next page.
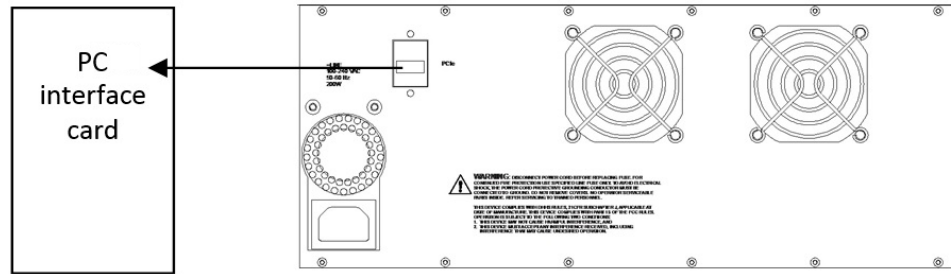
Figure 3 - MS05B connection shown

Windows XP Installation

1. Make sure the computer in which the PCIe card will be installed is turned off;

2. Install the PCIe card supplied with the MS05B/MS08B in one of the empty slot available in the computer;

3. Connect the PCIe card to the MS05B/MS08B platform using the cable included **and turn ON the MS05B/MS08B**;

4. Turn on the computer;

5. If the PCIe card is properly detected, Windows New Hardware Wizard will start. Check the box "No, not this time" like shown below and click Next;

6. Select installation from a specific location and then manually browse to the location of the Windows XP PCIe card driver on the USB key;

7. Go to step 13;

8. If the PCIe card was not detected automatically, from the computer's Control Panel open System Properties and click on the "Hardware" tab;
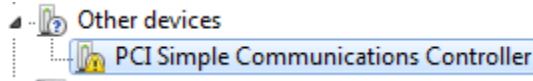

9. Under Other Devices, you should see "PCI Simple Communications Controller;

10. Right click "PCI Simple Communications Controller" and select "Update Driver Software …";

11. Select "Browse my computer for driver software"

12. Browse to the location of the Windows XP PCIe card driver on the USB key;

13. Reboot the computer.

Windows 7 Installation

1. Make sure the computer in which the PCIe card will be installed is turned off;

2. Install the PCIe card supplied with the MS05B/MS08B in one of the empty slot available in the computer;

3. Connect the PCIe card to the MS05B/MS08B platform using the cable included **and turn ON the MS05B/MS08B**;

4. Turn on the computer;

5. From the computer's Control Panel, open Device Manager;

6. Under System Devices, you should see "PCI Simple Communications Controller;

7. Right click "PCI Simple Communications Controller" and select "Update Driver Software …";

8. Select "Browse my computer for driver software"

9. Browse to the location of the appropriate 32-bits or 64-bits driver for your system (Win7-Vista-xx-bit) on the USB key;

   a. If you are not sure of the version to use, click the Start button and right click on Computer

   b. Click Properties and you can see if your system is using 32- or 64-bits
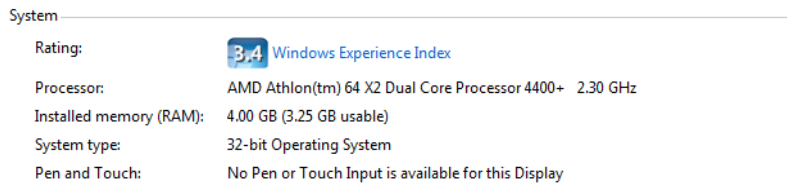

10. Reboot the computer.

MS Manager Installation

Now that the PCIe card has been installed and configured, the next step is to install the module detection software and MS Manager on the computer used to communicate with the MS05B/MS08B.

Windows XP Installation

1. The first step is to install the module detection software; browse to the location of:

2. "1) System Detection 1.0.0.1 for PC installation only";

3. Click on the folder and then run "setup.exe" to start the installation process. If not already installed, you will be promted to install the XML 6 Parser. Click OK to continue the installation;
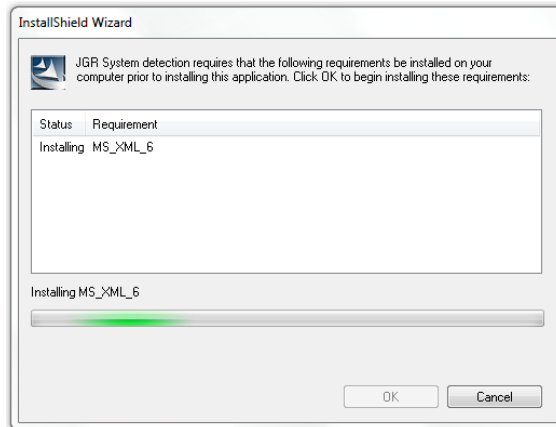
4. The installation of the system detection application will then be completed;

5. The next step is to install MS Manager; browse to the location of:

6. "2) MS Manager X.X.X.X";

7. Click on the folder and then run "setup.exe" to start the installation process;

8. Extract the content of the zip file "XML-Update.zip" to "C:\Program Files\Common Files\JGR\Platform\Config\"

    a. Overwrite any files being extracted;

9. Reboot the computer;

Warning

Make sure to turn ON the MS05B/MS08 before turning ON the external computer and MS Manager. Modules inserted in the MS05B/MS08 may not work properly if the MS05B/MS08 is turned ON after the external computer as detection of modules is performed at start-up.

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10. Run MS Manager;

11. Verify that all modules installed in the system are properly detected. If not, refer to the Troubleshooting section.

Windows 7 Installation

> **Warning**
>
> Windows XP mode must be installed on the computer prior to MS Manager installation under Windows 7. If not available on your computer, please visit Microsoft's website for download and installation procedures:
>
> *http://windows.microsoft.com/en-CA/windows7/install-and-use-windows-xp-mode-in-windows-7* .

1. The first step is to install the module detection software; browse to the location of:

2. "1) System Detection 1.0.0.1 for PC installation only";

3. Click on the folder and then right click "setup.exe" to open the properties.

4. In the Compatibility tab, check the box "Run this program in compatibility mode for:" and select "Windows XP Service Pack 3" from the drop-down menu. See next page;
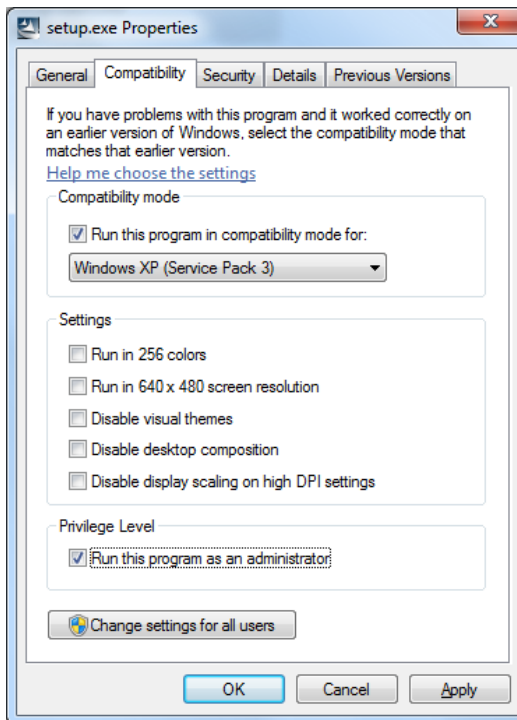
5. Run "setup.exe" to start the installation process. If not already installed, you will be promted to install the XML 6 Parser. Click OK to continue the installation;
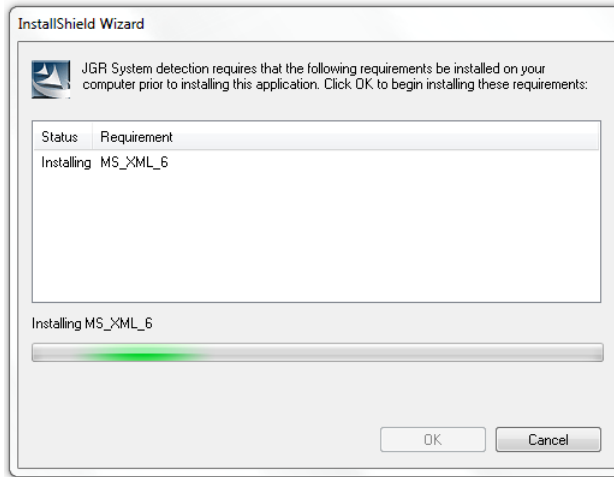
6. The installation of the system detection application will then be completed;

7. The next step is to install MS Manager; browse to the location of:

8. "2) MS Manager X.X.X.X";

9. Click on the folder and then run "setup.exe" to start the installation process;

10. Extract the zip file "XML-Update.zip" to "C:\Program Files\Common Files\JGR\Platform\Config\"

    a. Overwrite any files being extracted;

11. Reboot the computer;

Warning

Make sure to turn ON the MS05B/MS08 before turning ON the external computer and MS Manager. Modules inserted in the MS05B/MS08 may not work properly if the MS05B/MS08 is turned ON after the external computer as detection of modules is performed at start-up.

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12. Run MS Manager;

13. Verify that all modules installed in the system are properly detected. If not, refer to the Troubleshooting section.
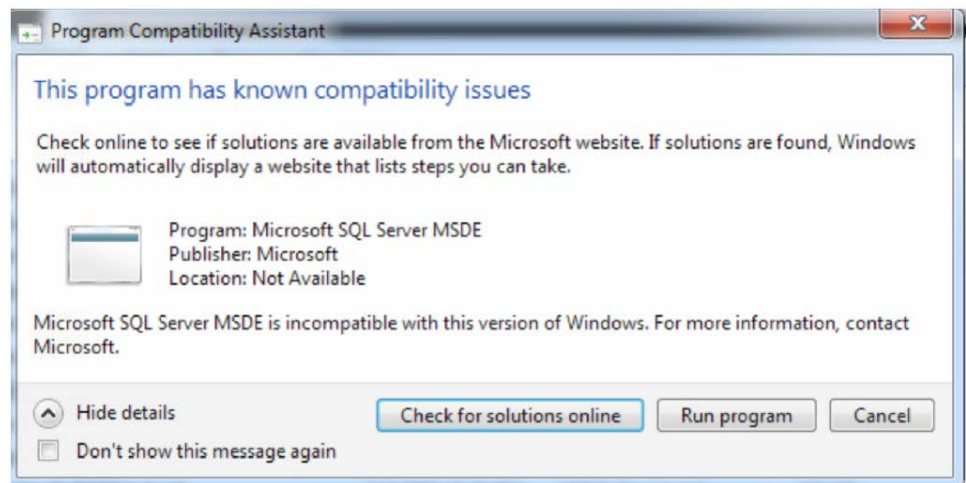
Installing MS12001Application

Before installing MS12001 application, make sure that PCIe card and MS Manager are properly installed. Refer to sections above for detailed installation procedures.

Windows XP Installation

1. Browse to the location of "3) MSDE SP4";

2. Run "MSDE.bat" batch file;

3. Once completed, browse to the location of "4) MS12001 X.X.X.X" application;

4. Click on the folder and then run "setup.exe" to start the installation process;

5. Proceed through installation;

6. If installing a new system, check the "Put sample data in database" box when prompted;

7. If updating or re-installing an existing system and you wish to clear existing data, check the "Drop existing database" box when prompted;

8. Reboot computer.

Windows 7 Installation

1. Browse to the location of "3) MSDE SP4";

2. Run "MSDE.bat" batch file;

3. If the windows message box below pops-up, please click on "Run program" to continue;

4. Once completed, browse to the location of "4) MS12001 X.X.X.X" application;

5. Click on the folder and then run "setup.exe" to start the installation process;

6. Proceed through installation;

7. If installing a new system, check the "Put sample data in database" box when prompted;

8. If updating or re-installing an existing system and you wish to clear existing data, check the "Drop existing database" box when prompted;

9. Reboot computer.

Product Overview

Front Panel and Key Description

A front view of the MS05B and MS08B mainframes are shown on Figure 4 and Figure 5 below. A detailed description of keys is provided in Table 5 on page 20.
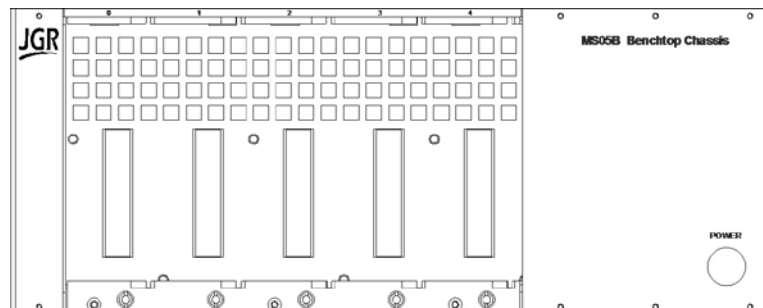

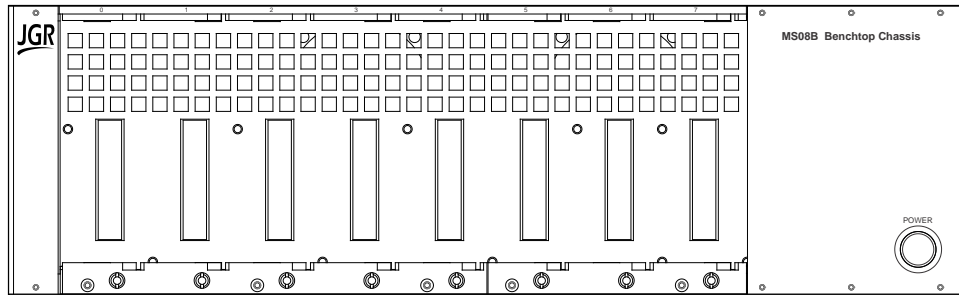**Figure 4: Front of the MS05B Mainframe**

Figure 5: Front of MS08B Mainframe

Rear Panel

The back of the MS05B and MS08B Mainframes are shown in Figure 6 and Figure 7 below. The rear-panel components and front-panel keys are described in Table 4 and Table 5.
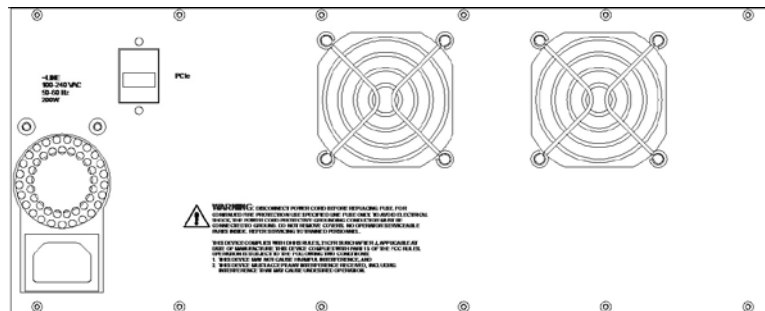

Figure 6: Back of the MS05B Mainframe
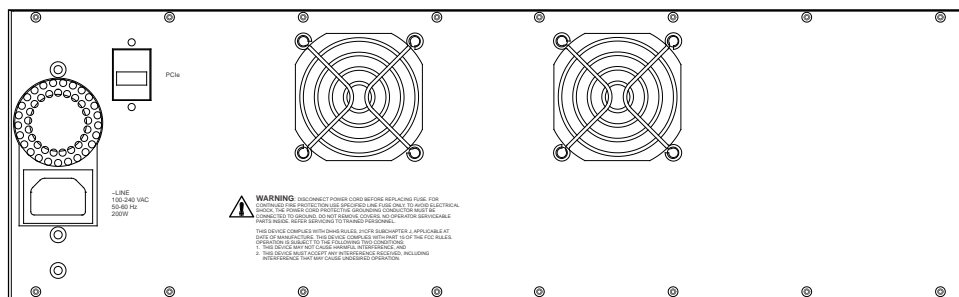
Figure 7: Back of the MS08B Mainframe

Table 4: Rear Panel Components

Component	Function
PCIe	PCI express interface port
~LINE	Power Input (also contains the user-replaceable fuse)

Table 5: MS05B/MS08B Operating Keys

Key/LED	Description
Power	ON/OFF button

5

OPERATION

Before the MS05B/MS08B can be used, PCIe card needs to be properly installed and configured in the computer used to control the MS05B/MS08B platform. All drivers and applications also need to be properly installed. Please refer to Section 4 above for the details and installation procedures.

Powering Up the System

To power up the system:

1. Insert all MS12 and MS7 modules required in the MS05B/MS08B;

2. Turn ON MS05B/MS08B platform;

3. Turn ON computer connected to MS05B/MS08B;

4. Wait for computer boot sequence to be completed. The MS Manager and MS12001 icons should be visible on the desktop of the computer;

5. Double-click on MS Manager icon to start the application. The MS Manager main screen should appear. An example with one MS12 module is shown on next page.
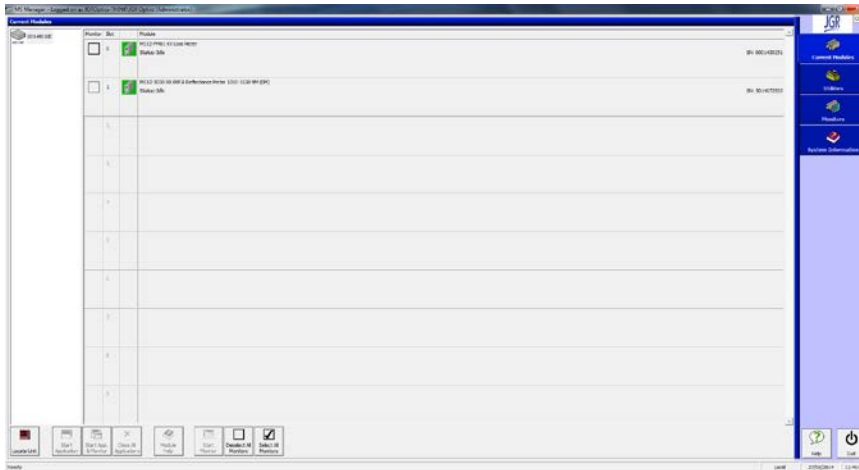
6. Make sure that all inserted modules are properly detected and then click on the MS12001 icon to start the Cable Assembly Test System application. The MS12001 main screen should appear. An example is shown below.
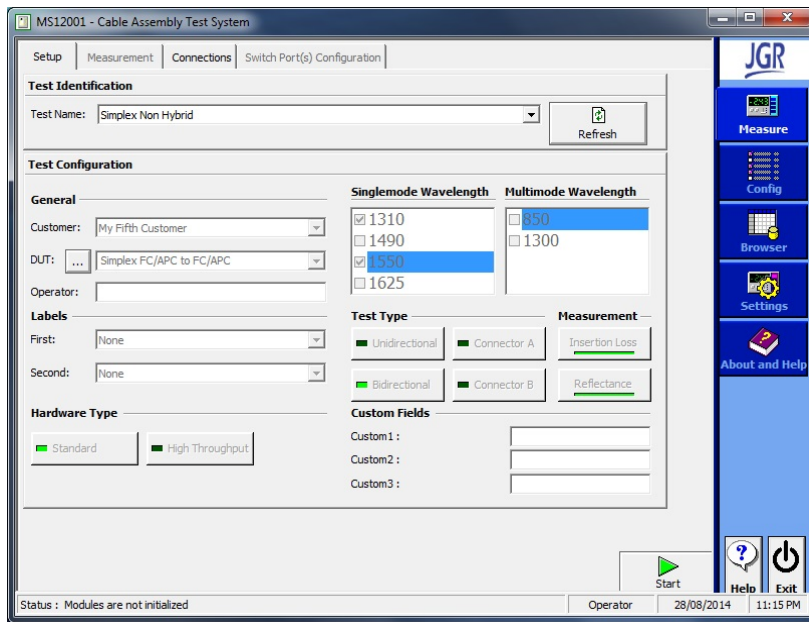
7. The system is now up and running. Refer to the MS12001 User Manual for detailed system operation.

6

MAINTENANCE AND TROUBLESHOOTING

Maintenance

⚠	**Warning** Devices with malfunctioning lasers must be returned to the manufacturer for repair.

To help ensure long, trouble-free operation:

1. Always inspect fiber-optic connectors and clean them if necessary;

2. Unplug the unit from the line power and clean the enclosure with a damp cloth. Do not plug the unit back until it is completely dry;

3. Make sure te remove any dust that would have accumulated in the fan protective grids;

4. Store unit at room temperature in a clean and dry area. Keep the unit out of direct sunlight;

5. Avoid high humidity or high temperature fluctuations;

6. Avoid unnecessary shocks and vibrations;

7. If any liquids are spilled on or into the unit, turn OFF the unit immediately, disconnnect from power source and let the unit dry completely.

Troubleshooting

If any problem described in this section persists, contact JGR Optics or your local representative.

Problem	Probable Cause	Recommended Action
MS05B/MS08B does not turn on.	AC power not applied.	Verify that power is available and that power cord is well inserted in outlet.
	Main power switch not at "ON" position	Turn power switch to ON.
	Fuse blown	Contact JGR. Fuse cannot be replaced by user.
MS05B/MS08B is ON but is not detected by computer	PCIe interface cable is not connected or SCSI card is not properly inserted	Verify that PCIe card is well inserted in PCIe slot of computer and that cable is well connected to MS05B/MS08B and computer
	PCIe card driver was not properly installed	Re-install driver following proper procedure. Refer to section 4 Getting Started.
	MS05B/MS08B was turned ON after the computer	Reboot PC with MS05B/MS08B already turned ON.
MS12 or MS7 module not detected	MS05B/MS08B is not turned ON	Turn MS05B/MS08B power switch to ON.
	Module is not inserted and locked properly in MS05B/MS08B platform	Remove and re-insert non-detected modules making sure to properly lock them in place using the knob on the module front panel. Remember to turn OFF MS05B/MS08B before removing or inserting a module.
	MS Manager was not properly installed on computer connected to MS05B/MS08B.	Install MS Manager on computer. Refer to User Manual section 4 for procedure.

Viewing Online Documentation

An online version of the MS Platform user guide is available at all times from the application. To access the online user guide, click **Help** in the function bar.

You can also open the online help of the current module by selecting the module and clicking **Module Help**.
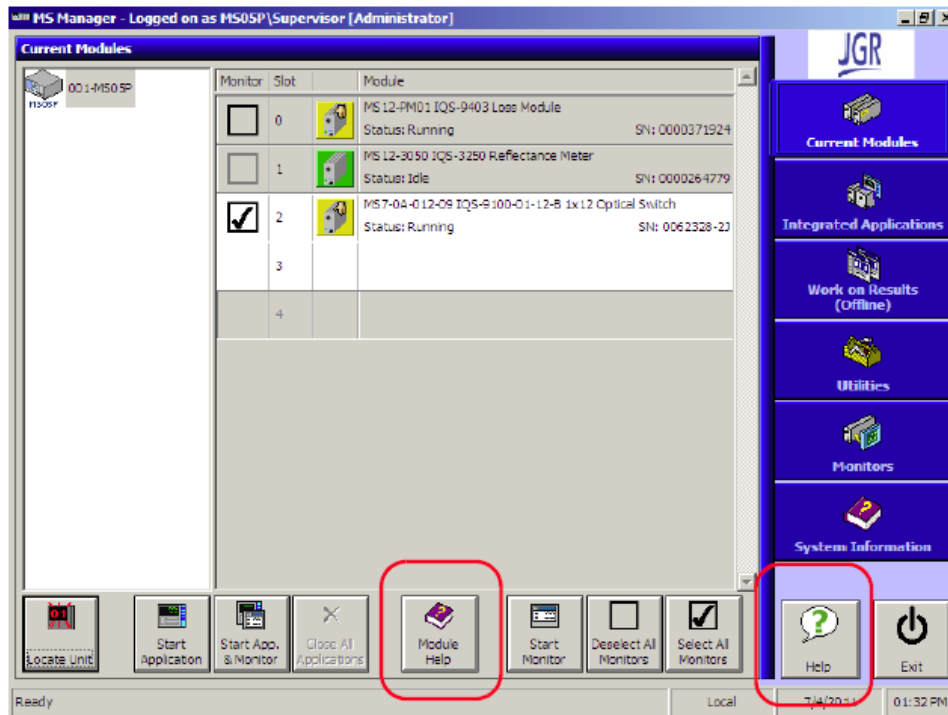
7

STORAGE AND SHIPPING

Damage can occur from improper handling during storage or shipping. Make sure to maintain the unit within the specified temperature range during storage or shipping. Please follow the recommendations below to minimize the possibility of damage:

If possible, pack the unit in its original packing material when shipping;

Avoid high humidity or large temperature fluctuations that cold generate condensation within the unit.

Avoid unnecessary shocks and vibrations.

Returning Instruments to JGR Optics

As indicated above, please ship the returned material in the original shipping box and packing material. If these are not available, follow the guidelines below:

1. Contact JGR Optics to obtain a RMA number;

2. Cover the front panel with foam to prevent damage;

3. Wrap the unit in anti-static packaging. Use anti-static connector covers;

4. Pack the unit in a strong enough shipping box considering the unit's weight;

5. Use enough shock-absorbing material (10 to 15 cm) to cushion the unit and prevent it from moving inside the box. Pink poly anti-static foam is recommended;

6. Seal the shipping box securely;

7. Clearly mark FRAGILE on at least 3 of the 4 sides of the box;

8. Always provide the model and serial number of the unit and, if necessary, the RMA number on any accompanying documentation. If possible, indicate the RMA number on the box itself to facilitate identification.

Contact Information

JGR Optics Inc.   Phone: 613-599-1000

160 Michael Cowpland Drive   Fax: 613-599-1099

Ottawa, Ontario, Canada   sales@jgroptics.com

K2M 1P6   www.jgroptics.com

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SPECIFICATIONS

Specifications are provided here as a reference only and may be changed without notice. Please refer to JGR Optics's website for the most recent specifications.

MS05B/MS08B Specifications

MINIMUM COMPUTER REQUIREMENTS		
Parameter	**Specification**	
	MS05B	**MS08B**
Operating System	32 bit Windows 8, 7 or XP	
Case Size	Mid-Tower	
Motherboard	1 available PCI slot	
Hard Drive	At least 40GB free	
Processor	2nd Generation Intel Core i3 or higher	
RAM	4 GB	

MECHANICAL / ENVIRONMENTAL SPECIFICATIONS		
Parameter	**Specification**	
	MS05B	**MS08B**
Unit Dimensions W x H x D (cm)	36 x 15 x 34	47 x 15 x 34
Unit Weight (kg)	7	7.5
Operating Temperature (°C)	0 to 40	
Storage Temperature (°C)	-40 to 70	
Humidity (Non-condensing)	Maximum 95% from 0°C to 40°C	