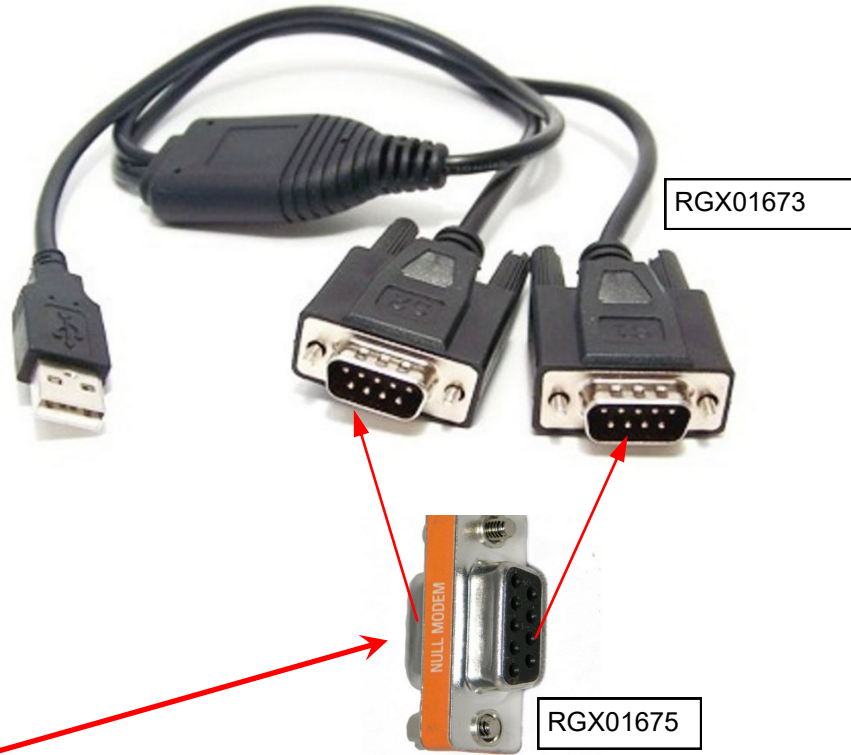# RazorGage
POSITIONERS • SOFTWARE • SYSTEMS

Set Up a RazorGage for Remote Serial Operation

These instructions apply if you are running your application and the RazorGage software application on the same PC. If you want to communicate to the RazorGage PC with another PC, you will need a single USB to serial adapter for the RazorGage PC and, if your host PC does not have a serial port, another USB to serial adapter for it. You will then need the null modem adapter shown below to connect the two together.

If you are running the RazorGage remote serial software and your software application on the same PC then you'll need the RGX01673 USB to Dual Serial Adapter shown at right.
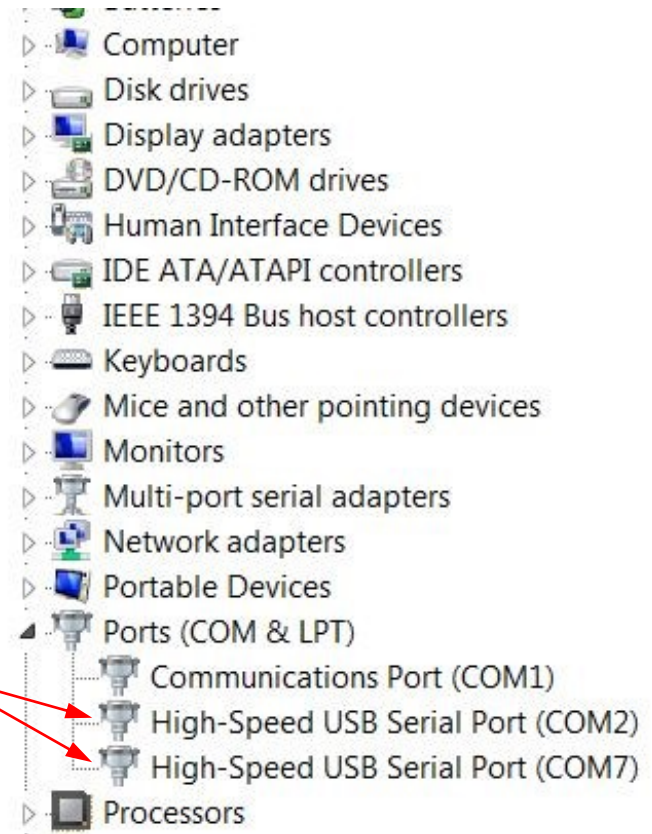
For Windows XP or Vista follow the instructions included to install drivers. For Windows 7, 8, or 10, connect the PC to the internet, plug the USB end of the adapter into a free USB port on the PC, and wait for Windows to complete the driver installation.

RGX01673

RGX01675

Use Female Null Modem Adapter RGX01675 as shown at right to connect the two serial cable connectors on the USB Dual Serial Adapter.

If you prefer, you can use a virtual serial port. Here is a link to one that has been recommended to us by our software partners:
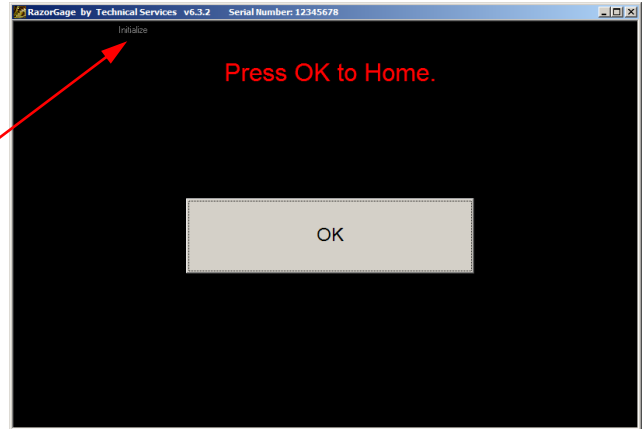http://com0com.sourceforge.net/

Once driver installation is complete, go to Device Manager in Windows and click on the + sign to the left of the Ports (COM & LPT) heading. You should see two new serial ports as shown at right. Make note of the port numbers and save for later. In the example at right, the port numbers are 2 & 7.

- Computer
- Disk drives
- Display adapters
- DVD/CD-ROM drives
- Human Interface Devices
- IDE ATA/ATAPI controllers
- IEEE 1394 Bus host controllers
- Keyboards
- Mice and other pointing devices
- Monitors
- Multi-port serial adapters
- Network adapters
- Portable Devices
- Ports (COM & LPT)
  - Communications Port (COM1)
  - High-Speed USB Serial Port (COM2)
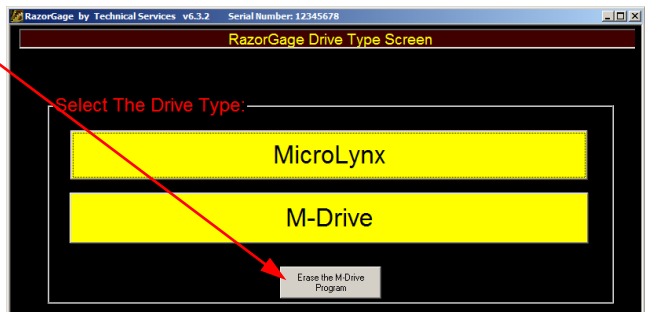 - High-Speed USB Serial Port (COM7)
- Processors

Start up the RazorGage software but do not press OK TO HOME. Instead press INITIALIZE.

Press the "Initialize" button located here.

Press the "Erase the M-Drive Program" button.

On older RazorGages you may be asked to browse to find the folder in which the programs are stored. If that is the case, browse to C:\Program Files\RazorGage. Most RazorGages, however will automatically find the install folder and you will see a list of programs to install. For remote serial, choose one of the programs indicated below.
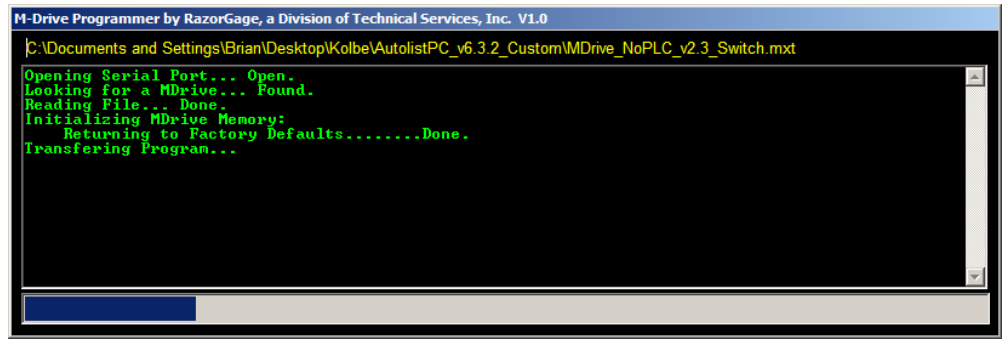
RazorGage by Technical Services v6.3.2   Serial Number: 12345678

Initialize

Press OK to Home.

OK

RazorGage by Technical Services v6.3.2   Serial Number: 12345678

RazorGage Drive Type Screen

Select The Drive Type:

MicroLynx

M-Drive

Erase the M-Drive Program
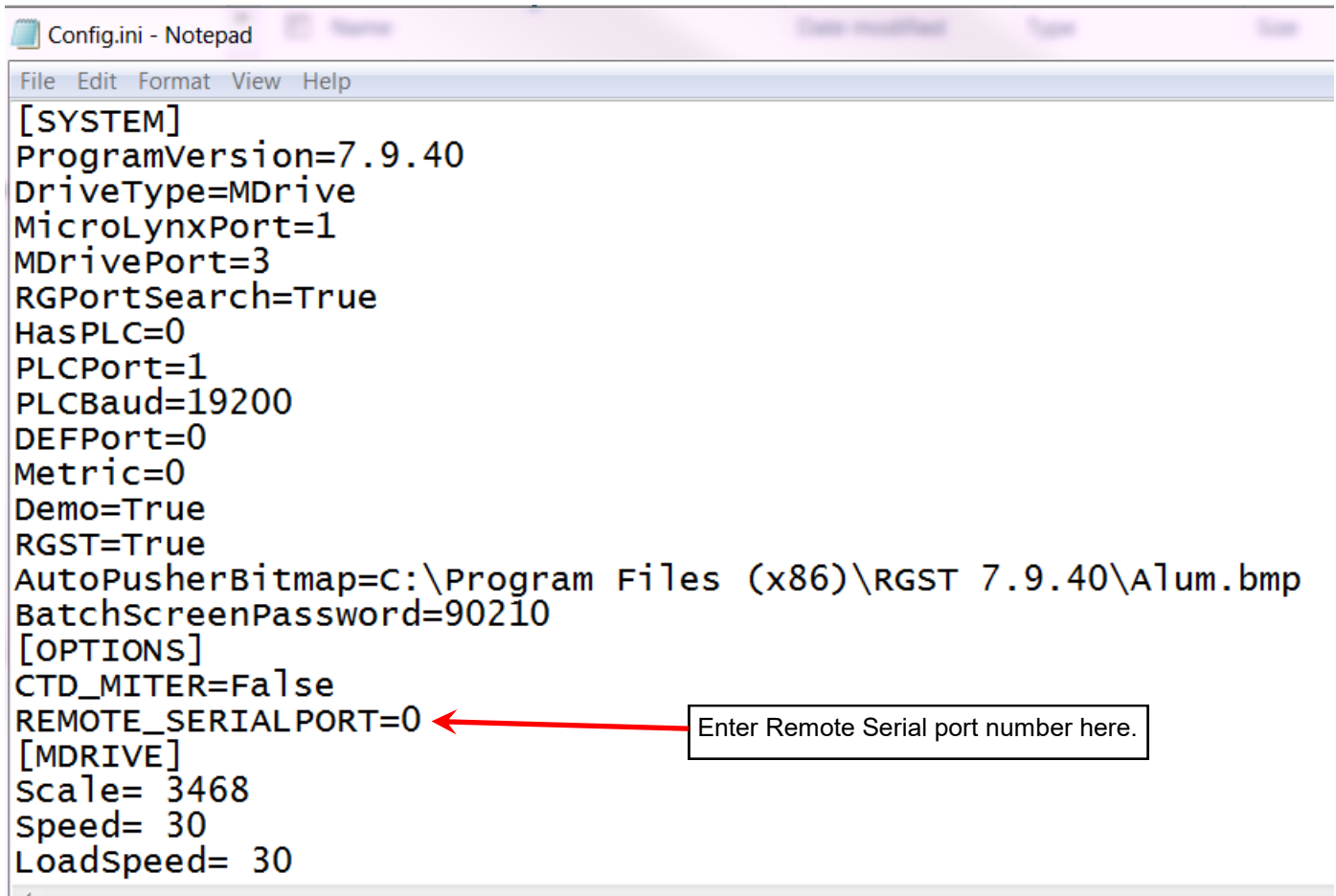
0-MDrive_No_IO_v3.0.mxt
1-MDrive_PLC_v3.0.mxt
2-MDrive_BMI_ToolSafeSwitch_v3.0.mxt
2-MDrive_BMI_ToolSafeSwitch_WithBrake_v3.0.mxt
3-MDrive_BMI_Plus_ScotchmanV2.mxt
3-MDrive_BMI_Plus_wOneSwitch_v3.1.mxt
3-MDrive_BMI_Plus_wProx_v3.0.mxt
3-MDrive_BMI_Plus_wSwitch_v3.1.mxt
4-MDrive_BMI_Custom_Remote_v3.0.mxt
4-MDrive_BMI_Custom_Remote_v3.0_ExternalRotaryEncoder.mxt
4-MDrive_No_IO_Custom_Remote_v3.1 .mxt

Std. RazorGage Remote Serial Command with Tool Safe

Std. RazorGage Remote Serial Command & No I/O

RazorGage Axis with Remote Serial Command Option and an external rotary encoder. This program is usually found on the OM Weigher.

You should see this screen during download.

M-Drive Programmer by RazorGage, a Division of Technical Services, Inc. V1.0

C:\Documents and Settings\Brian\Desktop\Kolbe\AutolistPC_v6.3.2_Custom\MDrive_NoPLC_v2.3_Switch.mxt

Opening Serial Port... Open.
Looking for a MDrive... Found.
Reading File... Done.
Initializing MDrive Memory:
    Returning to Factory Defaults........Done.
Transfering Program...

You will need to identify a serial port through which your application will communicate with the RazorGage software. If you are running your application on the RazorGage's PC then your application will send/receive out one port and the RazorGage software will send/receive via another port. To do this your PC either needs two serial ports, one serial port and one USB to serial adapter, or one USB port outfitted with a dual serial port adapter (shown on page 1 of this document). You will need to go to Windows' Device Manager to determine the port numbers of the available ports as shown on page 1 of this document. Once you have decided which port the RazorGage software will use, close the RazorGage software and use Windows File Explorer or My Computer ("Computer" on Windows 7, "This PC" on Windows 8) to navigate to C:\Positioner Runtime Files. Inside that folder will be another folder dedicated to the RazorGage software version you are running on your machine. Usually this folder will be labeled RGST. Inside that folder will be a file named config.ini. Open that file by double clicking on it and modify the file by entering a port number other than 0 on the Remote Serial line. See below

```
Config.ini - Notepad

File  Edit  Format  View  Help
[SYSTEM]
ProgramVersion=7.9.40
DriveType=MDrive
MicroLynxPort=1
MDrivePort=3
RGPortSearch=True
HasPLC=0
PLCPort=1
PLCBaud=19200
DEFPort=0
Metric=0
Demo=True
RGST=True
AutoPusherBitmap=C:\Program Files (x86)\RGST 7.9.40\Alum.bmp
BatchScreenPassword=90210
[OPTIONS]
CTD_MITER=False
REMOTE_SERIALPORT=0    ←——————  Enter Remote Serial port number here.
[MDRIVE]
Scale= 3468
Speed= 30
LoadSpeed= 30
```

Now close and save the config.ini file.

Using the settings in your software application that will be issuing commands to the RazorGage, assign the communication port that is cabled up to the RazorGage comm port. Use a port that is NOT assigned to the RazorGage software. The serial port settings are 9600 Baud, No Parity, 8 Bits and 1 Stop Bit. All commands and responses shall be terminated with a carriage return. Line feeds are ignored.

Start the RazorGage software, and begin communicating with it serially via the command set spelled out on the last page of this document.

The serial port settings are 9600 Baud, No Parity, 8 Bits and 1 Stop Bit. All commands and responses shall be terminated with a carriage return. Line feeds are ignored. The RazorGage software must be running in order to receive commands.

RazorGage Remote Serial Commands and Responses			
Note: All commands and responses shall be terminated with a carriage return. (Line feeds are ignored)			
Command Description	Syntax	Return String	Comments
Home the RazorGage	H	G=*current position*	Current & Desired position values could contain up to 4 characters before the decimal point and 3 characters after the decimal point. This will return the current 'Home Offset"
Move to Position	G=*desired position*	G=*current position*	Current & Desired position values could contain up to 4 characters before the decimal point and 3 characters after the decimal point.
Request Current Position	P or G	G=*current position*	Request current position.
Stop Motion Immediately	E	S=2	This will force a stall condition and the motor will be disabled. (See Fault conditions below)
Check Inputs NOTE: If you did not purchase the IO option, disregard this command.	I	I=0,0 or 1,0 or 0,1 or 1,1	The first digit after the equal sign is a 1 (true) or 0 (false) describing the state or RazorGage Input 1 and the digit after the comma is 1 (true) or 0 (false) describing the state of RazorGage Input 2. Input 1 is reserved for use as the Tool Safe Sensor. When that input is on then the RazorGage will not move. When it is off, the RazorGage is free to move. In many RazorGage screens the Tool Safe Sensor is used to automatically move to the next position after a machine cycle. THIS IS NOT AN ESTOP!
Set Output 2 NOTE: If you did not purchase the IO option, disregard this command.	O=0 or O=1	Ack with O=0 or O=1	Output 1 is reserved as the Machine Enable Output. When the RazorGage is in motion this output is turned off. When the RazorGage is not moving it is turned on. Output 2 is available for control from your software.
Read Output 2 NOTE: If you did not purchase the IO option, disregard this command.	O	O=0 or O=1	Reports Status of Output 2
Check RazorGage Status	S	See Below	Request current status.
		S=0	0=Ready to accept commands.
		S=1	1=Moving.
Status # 2 and up will automatically be sent if condition occurs.		S=2	2=Stall. At this point the motor is disabled and may be 'pushed' out of the way. Send a S=0 to clear the fault and the current position will be send back (G=xxxx.xxx)
		S=3	3=Requested position exceded the maximum limits.
NOTE: If you did not purchase the IO option, disregard this response.		S=4	4=Tried to move while Input 1 is off, Razorgage motion is disabled.
		S=5	5=Means there was a communicaitons fault between the PC and the motor controller. This usually requires some operator intervention to correct.
		S=9	RazorGage needs to be 'Homed'