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## Application Note 3008 MX200 to PC Interfacing and Communications

### Description

This document explains the process for interfacing and communicating with an MX200 from a Windows 7 PC. The serial communications program Tera Term must be installed prior to following these instructions. Tera Term can be downloaded from the following location:

<https://en.osdn.jp/projects/ttssh2/releases/>

### Instructions

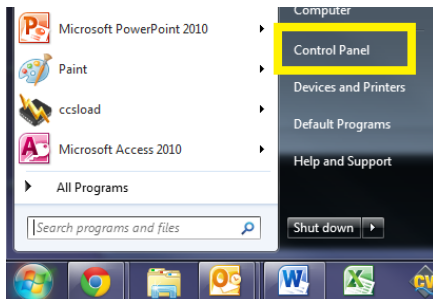
1. Connect the MX200 USB port on the back of the unit to a USB port on your PC.
2. Drivers should automatically download and install. If not, the drivers can be downloaded from this location:

<http://www.ftdichip.com/Drivers/VCP.htm>

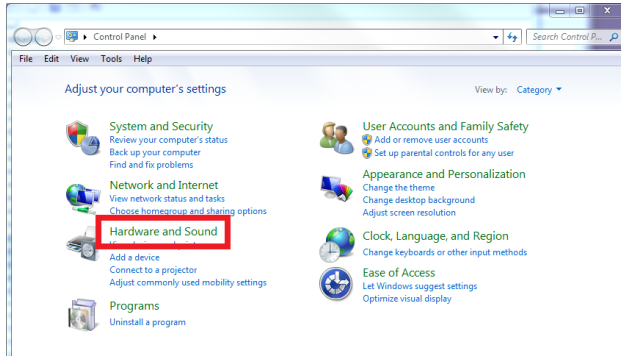
3. Open the Start Menu.



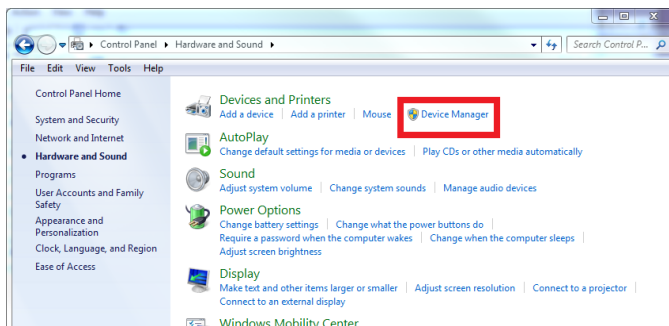
4. Open the Control Panel.



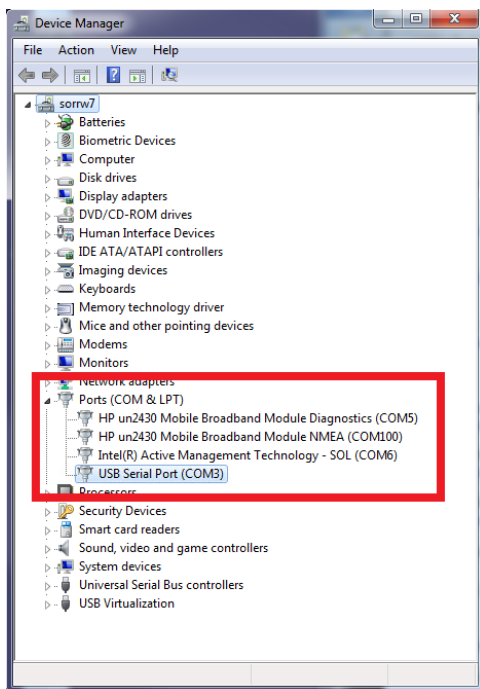
5. Open the Hardware and Sound.



6. Open the Device Manager.



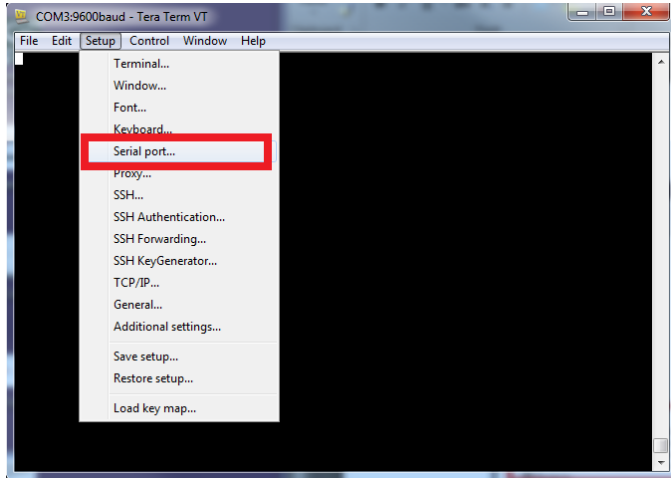
7. Expand the Ports (COM & LPT) drop down.



8. Determine the COM port assignment for your MX200, in this example the MX200 is assigned to COM3.

9. Open TeraTerm.

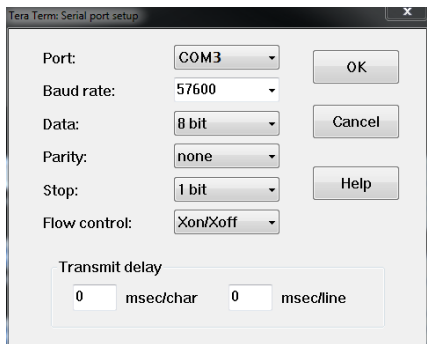
10. Open the Setup menu and select the Serial port... option.



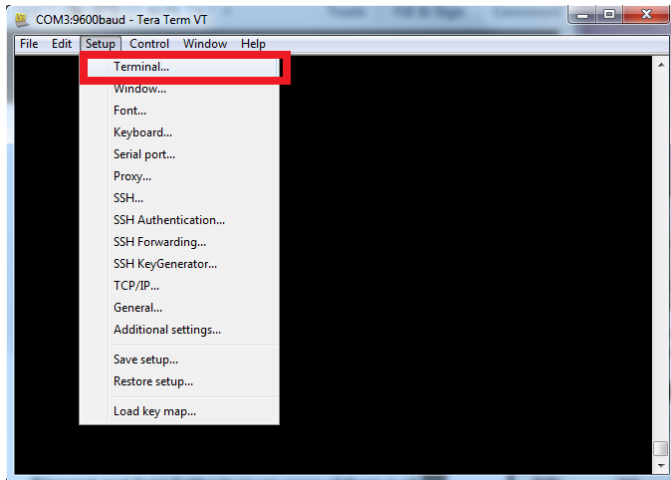
11. Change the Port setting to the COM port for your MX200, in this example it is COM3.

12. Ensure that the remainder of the settings match what is shown below, then select OK. Note that this example uses the default baud rate of 57600. This can be changed through the front panel by pressing the home button then going to Global Setup>Communications>Settings>Baud Rate.

- a. Baud rate: 57600
- b. Data: 8 bit
- c. Parity: none
- d. Stop: 1 bit
- e. Flow control: Xon/Xoff
- f. Transmit delay: 0 msec/char, 0 msec/line



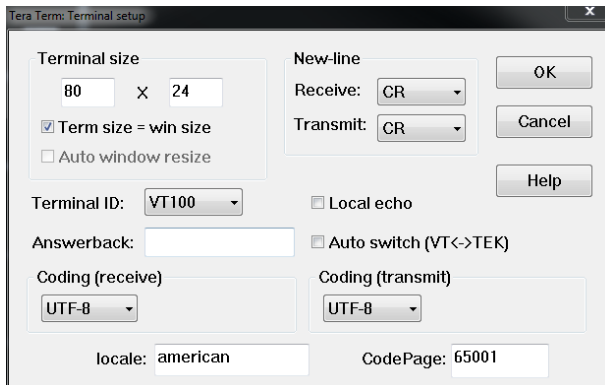
13. Open the Setup menu and select the Terminal setup... option.



14. Ensure that the settings are the following based on how you'll be using the communications, then select OK:

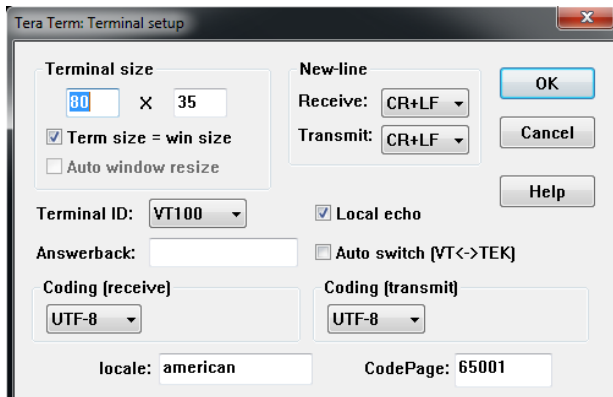
**a. For bootloading**

- i. Receive: CR
- ii. Transmit: CR
- iii. Local echo: unchecked



**b. For standard communications in the terminal**

- i. Receive: CR+LF
- ii. Transmit: CR+LF
- iii. Local echo: checked



15. You should now be able to communicate with the MX200. As an example, send the following command to read the output from all connected channels: "S1<cr>" (not including the quotations). A list of all commands can be found below in Table 1. A more detailed description of the communications can be found in the MX200 manual starting on page 17.

Command	Sample Output	Description
R1<cr>	XX<cr><lf>	Outputs units setting XX: PA=Pascal, TR=Torr, MB=mBar, TD=Torr decimal, MT=mTorr/Torr
W1XX<cr>	XX<cr><lf>	Set units to XX: PA=Pascal, TR=Torr, MB=mBar, TD=Torr decimal
S1XX<cr>	ppsee<cr><lf>	Vacuum reading for station XX is ppsee
S1<cr>	XX=ppsee ... XX=ppsee<cr><lf>	Output ppsee readings for every channel XX
S2<cr>	NNNNNN<cr><lf>	Logic firmware version
S3<cr>	NNNNNN<cr><lf>	Display firmware version
S4<cr>	XX=YY ... XX=YY<cr><lf>	Output station types: XX = station number, YY = sensor type
S5<cr>	XX=YY ... XX=YY<cr><lf>	Output set point XX status YY (ON=on, OF=off, 00=no set point connected)
S6<cr>	Televac ... <cr><lf>	Output all setup information
RC1XX<cr>	Baa<cr><lf>	Output first calibration point for channel XX
RC2XX<cr>	Baa<cr><lf>	Output second calibration point for channel XX
RC3XX<cr>	Baa<cr><lf>	Output third calibration point for channel XX, return error if point doesn't exist
RC4XX<cr>	Baa<cr><lf>	Output fourth calibration point for channel XX, return error if point doesn't exist
WC1XXBaa<cr>	PPSEE<cr><lf>	Set first calibration point for channel XX
WC2XXBaa<cr>	PPSEE<cr><lf>	Set second calibration point for channel XX
WC3XXBaa<cr>	PPSEE<cr><lf>	Set third calibration point for channel XX, return error if point doesn't exist
WC4XXBaa<cr>	PPSEE<cr><lf>	Set fourth calibration point for channel XX, return error if point doesn't exist
R2<cr>	01 02 03 04 05 ... <cr><lf>	Outputs channel numbers connected to the MX200
R3XX<cr>	HI<cr> or LO<cr><lf>	Outputs HI/LO resolution for station XX
W3XX<cr>	HI<cr> or LO<cr><lf>	Toggle HI/LO resolution for station XX
R4<cr>	01 02 03 04 05 ... <cr><lf>	Outputs channel numbers set to display on measurement screen
W4XX<cr>	ON<cr> or OF<cr><lf>	Adds or removes channel XX from measurement screen
R5XX<cr>	FbaaBAA<cr><lf>	Output analog output format, high and low values
W5XXF<cr>	F<cr><lf>	Set channel XX analog output format to linear-by-decade (lin/dec=3, lin/dec 7E=4)
W5XX1baa<cr>	Fbaa<cr><lf>	Set channel XX analog output format to linear: baa=high value
W5XX2baaBAA<cr>	FbaaBAA<cr><lf>	Set channel XX analog output format to linear: baa=high value, BAA=low value
R6XX<cr>	GG<cr><lf>	Output gas setting for channel XX
W6XXGG<cr>	GG<cr><lf>	Set channel XX to gas type to GG
R7Y<cr>	ppseePPSEZZ<cr><lf>	Output relay Y on = ppsee, relay Y off = PPSEE, and channel ZZ assigned to relay Y
W7YppseePPSEZZ<cr>	ppseePPSEZZ<cr><lf>	Set relay Y on to ppsee, relay Y off to PPSEE, and relay Y to channel ZZ
R8<cr>	A<cr><lf>	Outputs the cold cathode mode, A (auto = 1, self = 2)
W8A<cr>	A<cr><lf>	Sets the cold cathode mode, A (auto = 1, self = 2)
R9<cr>	BB<cr><lf>	Returns the cold cathode switch point value, BB (01 to 50)
W9BB<cr>	BB<cr><lf>	Sets the cold cathode switch point value, BB (01 to 50)
R10<cr>	CD<cr><lf>	Returns the cold cathode status odd and even (on/off) C-odd, D-even (0 = off, 1 = on)
W10CD<cr>	CD<cr><lf>	Sets the cold cathode status odd and even (on/off) C-odd, D-even (0 = off, 1 = on)
C1TTTT<cr>	TTTT<cr><lf>	Set baud rate to TTTT
C2EE<cr>	EE<cr><lf>	Set address to EE (00 to 99), RS-485 only
C4N<cr>	N<cr><lf>	Change I/O to N (RS-232=1, RS-485=2, USB=3)
C1<cr>	TTTT<cr><lf>	Output baud rate setting
C2<cr>	EE<cr><lf>	Output address for RS-485
C4<cr>	N<cr><lf>	Output communications type (RS-232=1, RS-485=2, USB=3)
HM<cr>	M<cr><lf>	Return to the measurement screen
RLR<cr>	SXXX<cr>	Output the leak rate calculation or channel 1 in mTorr (S=sign, XXX=-999 to 999)
WLRX<cr>	X<cr><lf>	Turn on or off leak rate calculation for channel 1 (0=off, 1=on)
WD_1XX<cr>	XX<cr><lf>	Restore channel setup defaults for channel XX
WD_7X<cr>	X<cr><lf>	Restore set point relay defaults for set point X
WD_CXX<cr>	XX<cr><lf>	Restore calibration defaults for channel XX
WD_G<cr>	D<cr><lf>	Restore defaults for global setup
SN<cr>	NNNNNN<cr><lf>	Returns the six digit serial number of the unit, with values from 000000 to 999999
PG_LGC<cr>	Bootloader ... <cr><lf>	Enters the bootloader for the logic firmware
PG_DSP<cr>	Bootloader ... <cr><lf>	Enters the bootloader for the display firmware

## Contact Us

Please feel free to contact us with any questions:

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