

Trimble FmX To Micro Trak With Rp - Basic Setup - Rev A

INITIAL PREPARATION:

Review the “Serial Rate Control Plugin” chapter of the AgGPS FmX Display User Guide. This describes the process of connecting an FmX display to a third-party variable rate controller. Please note the following Trimble reminder:

Note: You can install only one variable rate control plug at once. You cannot run the EZ-Boom plugin or the Tru Application Control plugin at the same time as the Serial Rate Control plugin.

PHYSICAL CONNECTION

- All the customer needs is the Trimble Cable P/N 67091.
Note: No additional adapter cable is required (i.e. do not use the Raven adaptor cable P/N 69279).
- ✓ Connect the 12pin plug “P1 (display)” into the appropriate connector on the back of the Trimble console.
- ✓ Connect DB9 end “P2 (RS232)” directly into the Micro-Trak controller.

Micro-Trak Controller Configuration

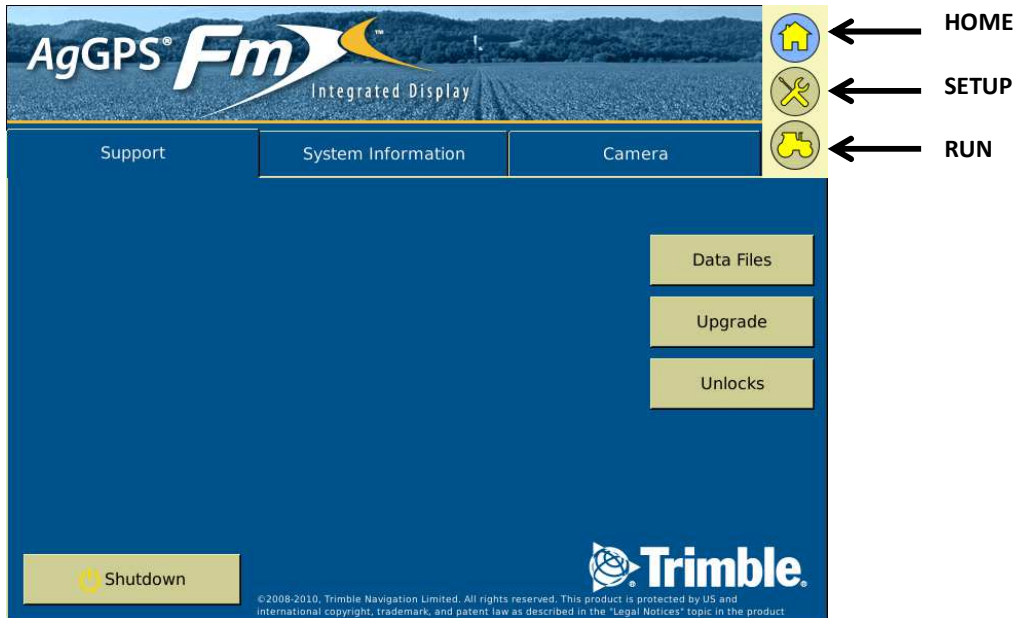
- None required.
- Remember that the total width of all sections of the MT controller must match the **Application Width** setting in the **Implement Boom Setup** screen.

TRIMBLE FmX CONFIGURATION

The following are the basic steps needed establish a working connection:

- ❖ Enable the Serial Rate Control plugin.
- ❖ Configure the implement boom/sections
- ❖ Configure the serial rate controller in the FmX display.
- ❖ Verify the communication status (Diagnostics)
- ❖ Enter RUN screen, and configure
- ❖ Ready to go.

Fig 1: Trimble HOME screen.



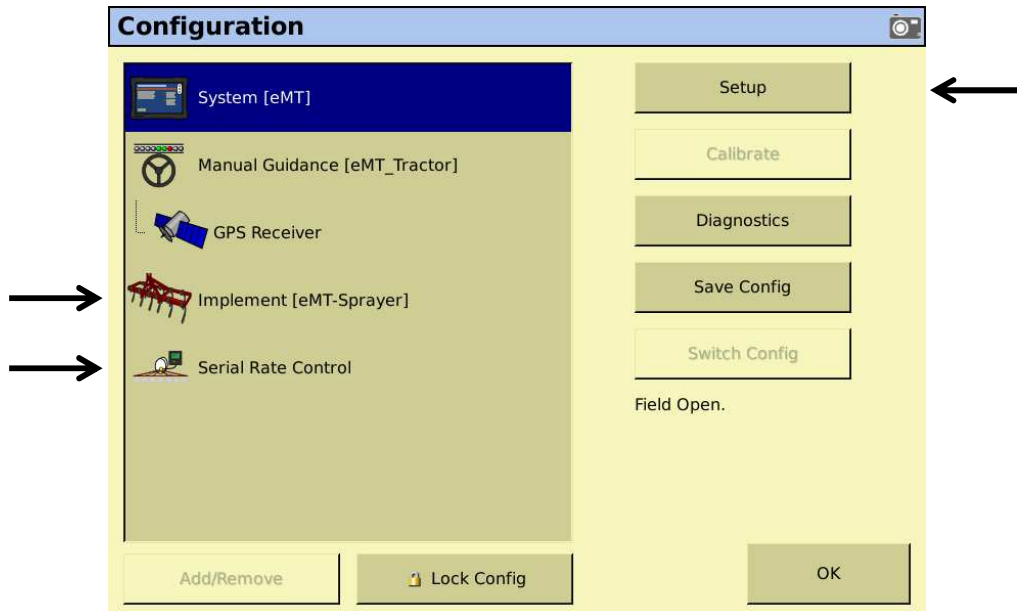
- Press [SETUP] button (wrench icon).
- When the next screen appears press the “Configure” button to bring up the Configuration Menu.

Configure Implement & Serial Rate Control

Fig 2: CONFIGURATION Menu.

- ❖ Enabling the Serial Rate Control plugin:

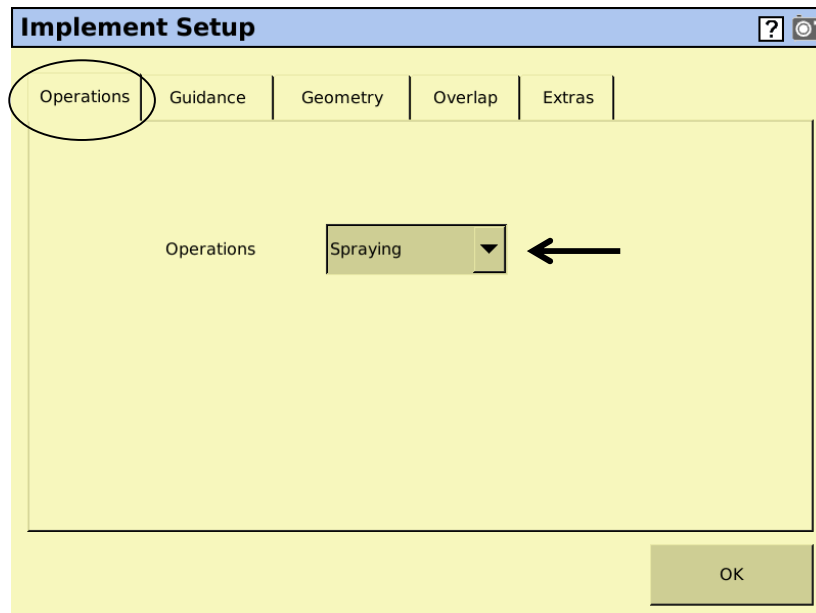
NOTE: If this plugin is not listed, press 'Add/Remove' and select it from the list of "Inactive Plugins" on the left. Press 'Add' to make it appear on the list of Active Plugins on the right. Then press OK.



- First, select **Implement** and press "Setup" button.

➤ Implement Setup:

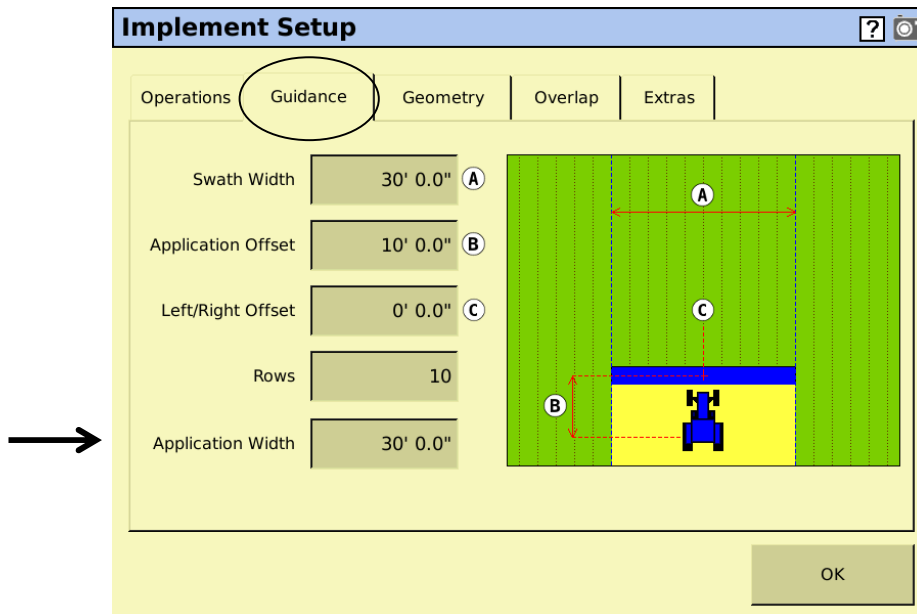
Fig 2.1.1: Implement Setup – 'Operations' tab



- ✓ Select the appropriate Operations from the drop down menu.

- Next, select the 'Guidance' tab.

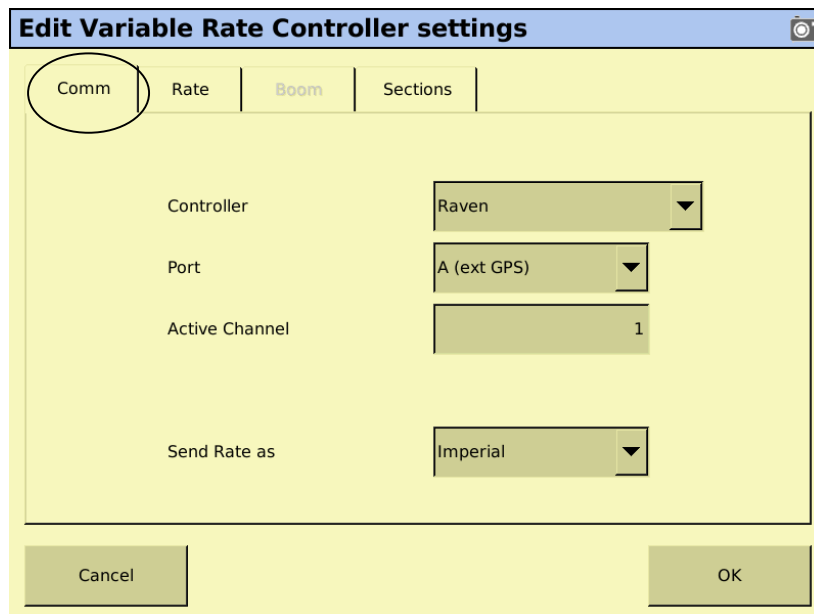
Fig 2.1.2: Implement Setup – 'Guidance' tab



- ✓ Enter "Application Width". This must match the total width of all sections on MT controller.
 - Press [OK] brings you back to the Configuration Menu (reference Fig 2).
 - Next, select "Serial Rate Control" and press [SETUP] which brings up the following:

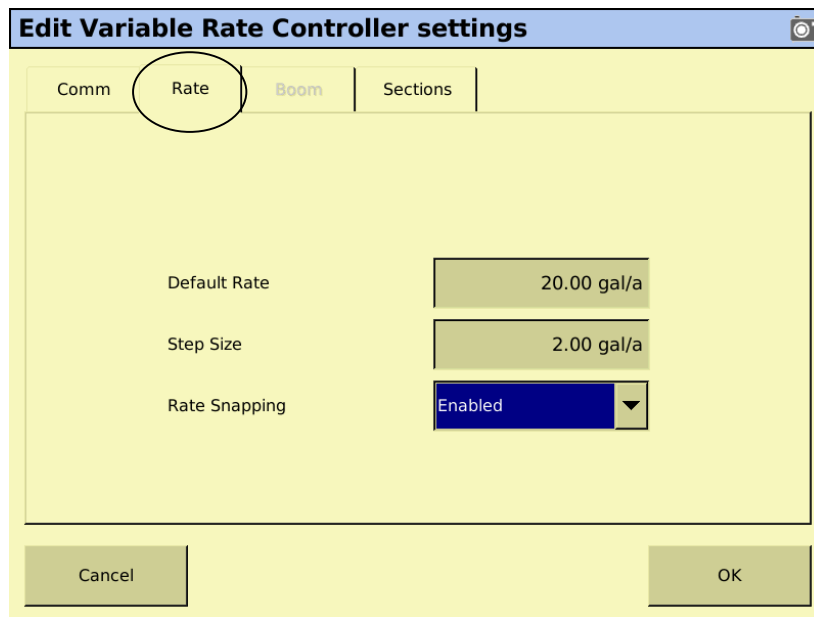
➤ Serial Rate Control Setup:

Fig 2.2.1: Edit VRC Settings – 'Comm' tab



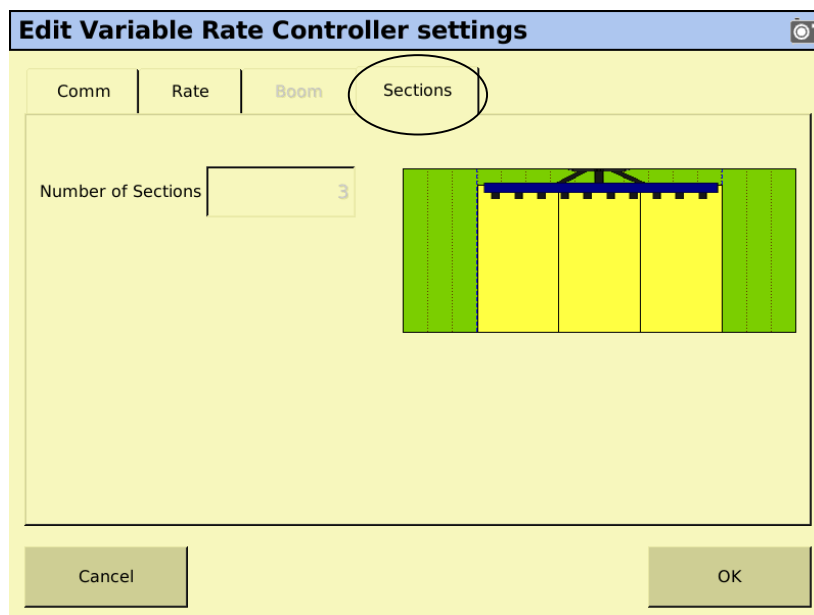
- ✓ Controller: Select 'Raven'.
- ✓ Port: Select the appropriate Port (A,B,C or D) where the serial cable is connected.
- ✓ Active Channel: Make sure this is set to '1'.
- ✓ Send Rate as: Imperial (or Metric).
 - Next, select the 'Rate' tab.

Fig 2.2.2: Edit VRC Settings – ‘Rate’ tab



- ✓ Default Rate: Enter a default rate (ex: for use without prescription map).
- ✓ Step Size: Enter value. (Target Rate can be changed by this amount via +/- buttons).
- ✓ Rate Snapping: User's choice.
 - Next, select the 'Sections' tab.

Fig 2.2.3: Edit VRC Settings – ‘Sections’ tab



- ✓ Number of Sections: Trimble automatically detects this when it initializes communications.

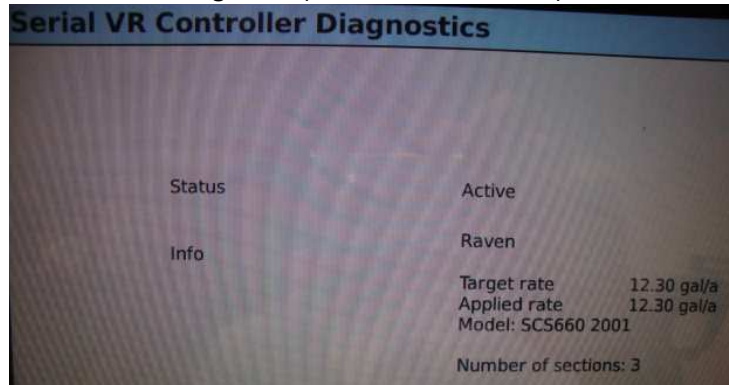
NOTE: If you do not see the expected # of sections, hit OK, re-enter SETUP back into this tab.

 - When [OK] button is pressed, the Trimble re-initializes communication and then reads back and uses the current section information from the MT controller. The screen then goes back to the **Configuration Menu** (reference Fig 2).

➤ **Verify Communication Status:**

- Navigate to the CONFIGURATION menu (reference Fig 2) select 'Serial Rate Control' and then press [DIAGNOSTICS] button. This brings up the following screen:

Fig 3.1.1: Serial Diagnostic (Controller connected).



- ✓ The above picture shows a good connection (Status = Active).

Fig 3.1.2: Serial Diagnostic (not connected).






- If "No controller connected" then try the following
 - Check the cable connection.
 - Ensure that MT controller is not in a calibration mode (if in CAL or SPEC.CAL, exit out).If either of the above corrects the problem then the display will update to (Fig 3.1.1).
- Status still not changed to 'Active' ?
You can always force the Trimble FmX console to re-initialize communication with the controller by doing the following:
 - Navigate to CONFIGURATION menu (Fig 2)
 - Select either '**Implement**' or '**Serial Rate Control**' and then press [CONFIG]
 - When the setup screen appears just press [OK] button (no need to change any values).
 - ✓ Re-check DIAGNOSTICS screen to verify whether this solved the problem.

! For more details on serial port troubleshooting see APPENDIX A.

➤ Run Screen

Fig 4.1.1: Configuration Selection (on the way to RUN screen).

Configuration Selection

	Display	eMT Language: English Units: Feet and Inches Keyboard: ABCDEF	Switch	Edit
	Vehicle	eMT_Tractor	Switch	Edit
	Implement	eMT-Sprayer 30' 0" swath width 30' 0" application width 3 sections 10 rows	Switch	Edit

Cancel OK

Press [OK] button to continue.

Fig 4.1.2: Field Selection (on the way to RUN screen).


Field Selection

Client	eMT-test	New
Farm	eMT-farm	New
Field	eMT-field	New
Event	test9	New

Event Attributes Variety Setup

Selected Implement

eMT-Sprayer
30' 0" swath width
30' 0" application width
3 sections
10 rows

Field  55' 11.35" NNW

Cancel OK

Select Field information per user's choice
Press [OK] button to continue.

Fig 4.1.3: Select Prescription (on the way to RUN screen).

- ❖ “No Prescription”: If you are not using a Prescription Map (just want to record “As Applied” information) then press the [No Prescription] button.

Prescription Map Settings:

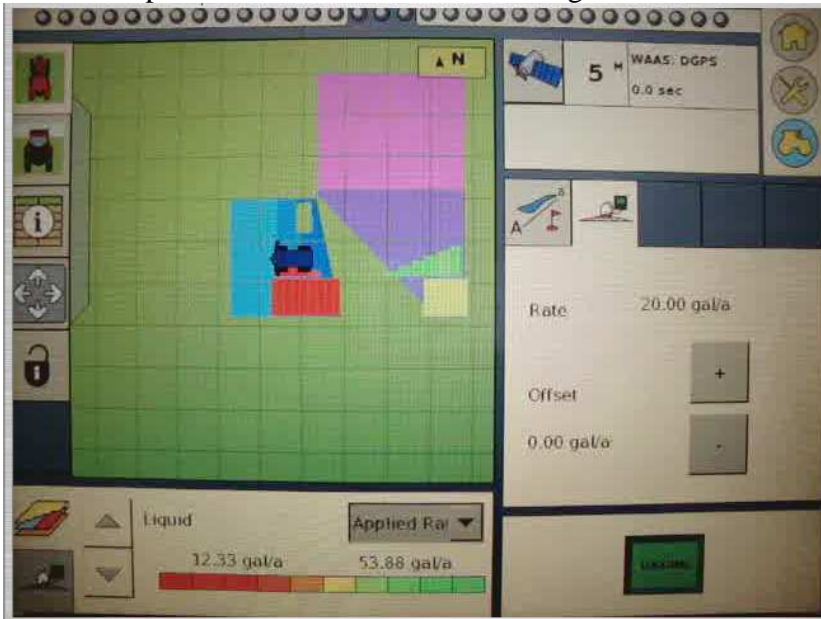
- Prescription and Rate Column: Select the desired Prescription on the left and the corresponding Product will show up in the ‘Rate Column’ on the right.
- “When off prescription use”: Choose either ‘Zero Rate’, ‘Last Rate’, or ‘Default Rate’.
- Prescription Scale Factor: See Fig 4.1.3.1 below

Fig 4.1.3.1: Prescription Scale Factor (on the way to RUN screen).

- If you are not using METRIC units, then you must enter the appropriate scale factor. For LIQUID this is 9.354. (See appendix B for note on DRY).

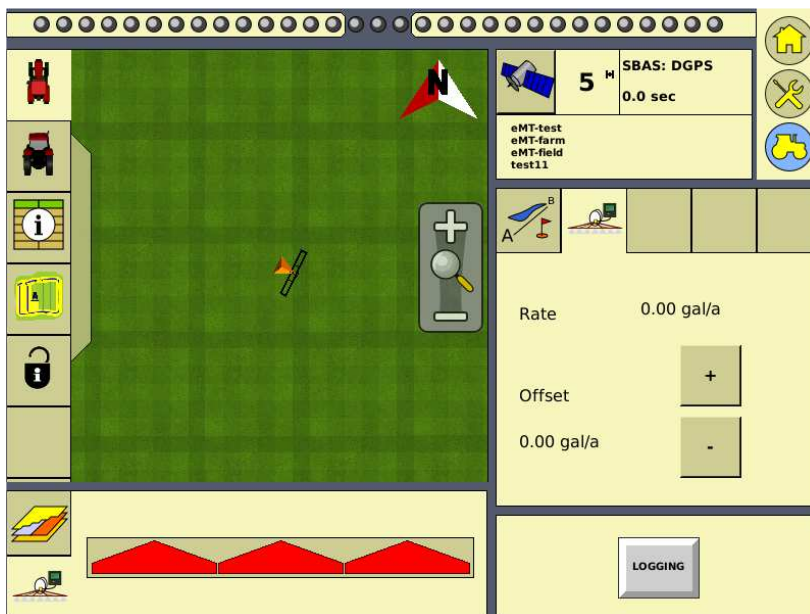
Fig 4.2.1: RUN screen (with Prescription Map)

The Prescription zones are shown in the background.



- The applied Rate is shown as the implement drives through the field.
 - The map shows the MT controller did not apply any product (in the middle) where the prescription was Target Rate zero.
 - After the turnaround the map shows section (7 in this case) being shut off individually from right to left.

Fig 4.2.2: RUN screen (without Map)

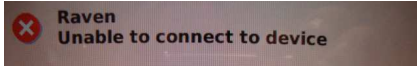


APPENDIX A: Serial Communication Troubleshooting

TRIMBLE FmX console:

If there is a problem with

- Warning Message: Serial Communication .



During initial setup, if there is no connection to the MT controller this message will show up.

Note: During testing, once in a rare while this message would sometimes pop up even though communication was still working just fine. If this happens just hit OK and continue.

- Navigate to the main CONFIGURATION menu (see Fig 2), select 'System' then press [DIAGNOSTICS] button.

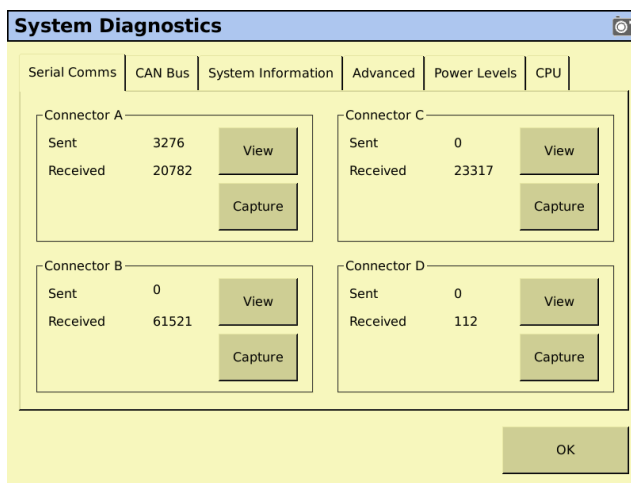


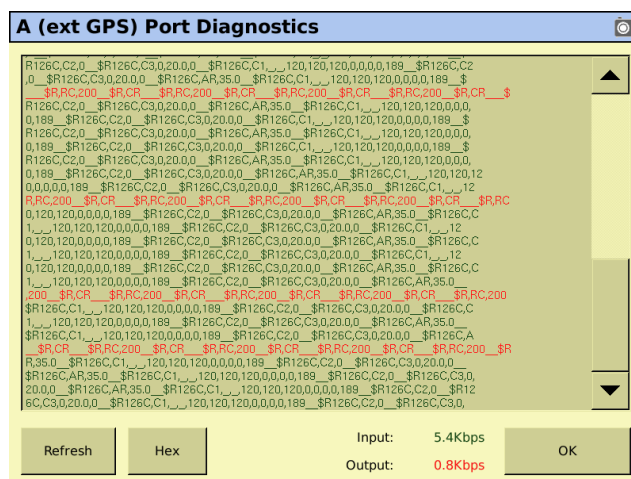
Fig 3.2: System Diagnostic (look at all ports).

- ✓ Verify that data is actively being 'Sent' and 'Received' on the appropriate Connector.

NOTE: See the Trimble User Guide to ensure you are using a Port that works with SerialRateControl plugin.

If you press [View] button on the connector where the controller is attached, you should see this

Fig 3.2.1: System Diagnostic (look at all ports).



Micro-Trak controller:

MT controller TRANSMIT

The MT controller is automatically configured to transmit serial data once/second. If the controller is powered up and not in a calibration mode (CAL or SPECIAL CAL) then it will be continuously transmitting and the Trimble FmX should be receiving.

MT controller RECEIVE

- **'V'** icon
MT controllers (with latest software update) also have a VRA status indicator that is lit up while receiving VRA (Rate Change) commands. If the MT controller is receiving VRA (Rate Change) commands from the FmX console the **'V'** icon will stay lit. If the FmX ever stops transmitting, the **'V'** icon will disappear.
- **'PHold'** message
If the MT controller rotary switch is in the RATE position (7 o'clock) and it has received a Target Rate = 0, then "PHold" (Prescription Hold) is displayed to clearly indicate that the

APPENDIX B: Miscellaneous

The following are things that were observed while working with the Trimble FmX. Some of these may have been older issues that have been resolved in newer versions of FmX firmware. The FmX console used in testing serial rate control was running Version 4.01.36464 (Nov 15 2010).

- Special note for DRY (non-liquid application) controllers.

PRESCRIPTION SCALE FACTOR

For example, when connecting FmX to a Micro-Trak GSC-1000 (Granular Rate Controller) controller – when starting up the RUN screen and are entering the Prescription Scale Factor: **DO NOT** select “1.121 Granular lbs/acre” because it will apply the wrong scaling factor (rates will be different from those specified on the Prescription map). Instead select “9.354 Liquid gal/ac” to keep the rates the same as on Rx map.

UNITS

It was also observed that in **Implement** setup, selecting “Spreader” instead of “Sprayer” has no affect. The RUN screen still shows gal/acre even though the prescription map was specified in units of lbs/ac.

- “PHold” message on MT controller after Trimble shutdown
It was also observed that whenever the Trimble FmX begins its shut down process by pressing the [SHUTDOWN] button (reference Fig 1) it starts sending Target Rate = 0 until it is powered off. This leaves the MT controller stuck in Hold. To get the controller out of this persistent condition, either cycle power or enter/exit CALibration.
- NUMBER OF SECTIONS
On initial communication startup, the Trimble examines the section widths (received from MT controller) – and looks for the first ZERO width. This is how it determines how many sections are to be used.
- Occasional “bogus” error message.
Testing showed that on occasion (very seldom) the FmX displays the “Raven: Unable to connect to Device”.