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WSL-2E Software Installation Instructions

* PLEASE NOTE *

The default settings upon installation for the Serial Link, WiNet[®] Manager and serial server control are:

Serial Link Station Name:	PRAM Technologies	
ESSID:	pram	(Lower case)
RF Channel:	6	(For reference only)
Wireless TCP/IP:	192.168.0.10	(Do not use these TCP/IP addresses for your
Serial TCP/IP	192.168.0.11	computer WiLAN PC card's network address)
Subnet:	255.0.0.0	

It is strongly recommended that these settings, except for the ESSID, not be changed unless you are familiar with networks and their structure.

► After the initial installation and confirmation, it is not necessary to run WiNet[®] Manager unless you need to change the WSL-2e's settings. This is a configuration utility only and is not required for normal operation of your device's software or the WSL-2e.

FIRST

Make sure your wireless LAN PC card, appropriate driver(s) and client software are installed in your computer and functioning properly. PLEASE make sure you are familiar with this client software AND you know how to verify/configure your computer's network settings prior to contacting PRAM for assistance. Now, using the PC card client utility, configure your WiLAN PC card as follows:

ESSID:	pram	(Lower case)
Set mode to:	Infrastructure or AP	

Please refer to the Wireless PC card's instructions for assistance in setting PC card parameters.

SECOND

In your computer's Network Properties, make sure the TCP/IP protocol is installed. Now, *FOR THE WiLAN PC CARD*, set the:

IP Address to	192.168.0.x	(x being any <u>unique</u> number from 1 – 254, e.g. 192.168.0.5,
Subnet Mask to	255.0.0.0	excluding 0, 10 and 11)

Please refer to your Windows[®] user instructions for configuring/verifying your computer's network settings

Now, proceed with the installation of WiNet[®] Manager and the serial control software for the appropriate operating system:

Windows® 95/98/ME

Open the CD window and choose **setup98.exe**. It is recommended you install on the same drive/partition as Windows®. Follow the prompts.

Connect antenna(s) and power to the WSL-2E, select the appropriate serial protocol (RS232 or RS485) and turn on the unit.

Confirming with WiNet® Manager

Run WiNet® Manager from the **Start** menu: **Programs / PRAM Technologies / WSL-2 / WiNet®** to confirm wireless connection with the WSL-2E. When the WiNet® window appears, the WSL-2 with the station name “PRAM Technologies” should appear showing BOTH the Wireless IP of 192.168.0.10 and a Serial IP of 192.168.0.11.

- If yes: You're now ready to configure the serial port in Serial Server Manager®.
- If no: Make sure the WSL-2E has power, is turned on, and the antenna(s) are connected .
Confirm your network settings, wireless PC card settings and association.
Cycle power on the WSL-2E and reboot your computer.
After confirming the above, click on **Find**. The WSL-2 should now appear. If still not connecting, give us a call.

Configuring Serial Server Manager® (SSM)

From the **Start** menu, open **Programs / PRAM Technologies / WSL-2 / SSM**.

In the menu bar, select **Server / Add Server Wizard**. Make sure “Yes” is selected and click **Next**. After a few seconds a window should appear showing “WSL-2” with an IP of 192.168.0.11.

- If yes: Proceed with the Add Server Wizard, following the prompts. In the Com Port selection window, choose a com port not used by your computer, including disabled but permanently assigned ports (i.e. infrared ports or touch screens).
Finish the Add Server Wizard.
- If no: Make sure the WSL-2E has power, is turned on, and the antenna(s) are connected.
Confirm your network settings, wireless PC card settings and association.
Cycle power on the WSL-2 and reboot your computer.
After confirming the above, click on **Find**. WSL-2 should now appear. If not, give us a call.

Close WiNet and SSM, connect your serial device to the WSL-2E, start the appropriate software to control the serial device. Remember to select the same com port as configured in Device Manager and confirm RS232 or RS485 protocol. It may be necessary to reboot the computer at this time.

**** NOTE ****

Do NOT run WiNet or SSM unless you need to change the WSL-2e's settings. These are configuration utilities and are not required for normal operation of your device's software or the WSL-2e.

Windows® 2000

Open the CD window and choose **setup2K.exe**. It is recommended you install on the same drive/partition as Windows®. Follow the prompts.

Connect antenna(s) and power to the WSL-2E, select the appropriate serial protocol (RS232 or RS485) and turn on the unit.

Confirming with WiNet® Manager

Run WiNet® Manager from the **Start** menu: **Programs / PRAM Technologies / WSL-2 / WiNet®** to confirm wireless connection with the WSL-2E. When the WiNet® window appears, the WSL-2 with the station name “PRAM Technologies” should appear showing BOTH the Wireless IP of 192.168.0.10 and a Serial IP of 192.168.0.11.

If yes: You’re now ready to configure the com port assignment.

If no: Make sure the WSL-2E has power, is turned on, and the antenna(s) are connected.
Confirm your network settings, wireless PC card settings and association.
Cycle power on the WSL-2E and reboot your computer.
After confirming the above, click on **Find**. The WSL-2 should now appear.
If still not connecting, give us a call.

Configuring the com port assignment

From the **Start** menu, go to **Settings / Control Panel / Add/Remove Hardware**.

In **Hardware Wizard**, click **Next**.

Make sure **Add/Troubleshoot a device** is selected and click **Next**.

After the computer searches for new devices, the **Choose a Hardware Device** window will appear: Select the first item, **Add a new device**, and click **Next**.

Select **No, I want to select the hardware from a list**. Click **Next**.

Scroll down and select **Multi-port serial adapters**. Click **Next**.

In the left window, select **PRAM Technologies**. Then in the right window select **PRAM Technologies WSL-2**. Click **Next**. Click **Next** again.

Click **Yes** if a dialog concerning a digital signature not being found appears.

A WSL-2 with the IP address of 192.168.0.11 should appear. Select it and click **Next**.

Click **Next** again and please wait for the computer to initialize the com port. Finish the Hardware Wizard.

In **Control Panels**, open **System**, click on the **Hardware** tab and then click on **Device Manager**.

Scroll down to **Multi-port serial adapters**, expand and confirm the presence of “PRAM Technologies WSL-2”.

Scroll down to **Ports (COM & LPT)**, expand and confirm the presence of “PRAM WSL-2 Port 1 (COM2)”.

If COM2 is okay, you can close out Device Manager. If you need to change the com port assignment:

Scroll back to **Multi-port serial adapters**, expand and double click “PRAM Technologies WSL-2”.

Click on the **Configuration** tab, and click on **Ports Setting**.

Select “Port 1 COM2” and click on **Modify Setting**.

From the drop down menu, select the desired com port number: Choose a com port not used by your computer, including disabled but permanently assigned ports (i.e. infrared ports or touch screens). Click **OK** three times for each of the three windows.

The **Device Manager** window will refresh two or three times. Scroll down to **Ports (COM & LPT)**, expand and confirm the presence of “PRAM WSL-2 Port 1 (COMx)”, x being the com port number previously selected.

Close out all windows, reboot the computer and cycle power on the Serial Link.

Connect your serial device to the WSL-2, start the appropriate software to control the serial device. Remember to select the same com port as configured in Device Manager and confirm RS232 or RS485 protocol.

Windows® XP

Open the CD window and choose **setupXP.exe**. It is recommended you install on the same drive/partition as Windows®. Follow the prompts.

Connect antenna(s) and power to the WSL-2E, select the appropriate serial protocol (RS232 or RS485) and turn on the unit.

Confirming with WiNet® Manager

Run WiNet® Manager from the **Start** menu: **Programs / PRAM Technologies / WSL-2 / WiNet®** to confirm wireless connection with the WSL-2E. When the WiNet® window appears, the WSL-2 with the station name “PRAM Technologies” should appear showing BOTH the Wireless IP of 192.168.0.10 and a Serial IP of 192.168.0.11.

If yes: You’re now ready to configure the com port assignment.

If no: Make sure the WSL-2E has power, is turned on, and the antenna(s) are connected.

Confirm your network settings, wireless PC card settings and association.

Cycle power on the WSL-2E and reboot your computer.

After confirming the above, click on **Find**. The WSL-2 should now appear.

If still not connecting, give us a call.

Configuring the com port assignment

From the **Start** menu, go to **Control Panel**, then select **Add Hardware**.

In **Hardware Wizard**, click **Next**.

Click **Yes** in the **Is The Hardware Connected?** window.

In the next window, scroll to the bottom, select **add a new hardware device** and click **Next**.

Now select **Install the hardware that I manually select from a list**, click **Next**.

Make sure **Add/Troubleshoot a device** is selected and click **Next**.

Scroll down and select **Multi-port serial adapters**. Click **Next**.

In the left window, select **PRAM Technologies**. Then in the right window select **PRAM Technologies WSL-2**. Click **Next** . . . Click **Next** again.

Click **Continue anyway** if a window concerning Windows XP Testing appears.

* WAIT * A WSL-2 with the IP address of 192.168.0.11 should appear. Select it and click **Next**.

Click **Next** again and please wait for the computer to initialize the com port. Finish the Hardware Wizard.

* WAIT * for **Found New Hardware Wizard** to start and select **Install the software automatically**, then click **Next**.

Click **Continue anyway** if a window concerning Windows XP Testing appears.

Click **Finish**.

In **Control Panels**, open **System**, click on the **Hardware** tab and then click on **Device Manager**.

Scroll down to **Multi-port serial adapters**, expand, confirm the presence of “PRAM Technologies WSL-2”.

Scroll down to **Ports (COM & LPT)**, expand and confirm the presence of “PRAM WSL-2 Port 1 (COM2)”.

If COM2 is okay, you can close out Device Manager. If you need to change the com port assignment:

Scroll back to **Multi-port serial adapters**, expand and double click “PRAM Technologies WSL-2”.

Click on the **Configuration** tab, and click on **Ports Setting**.

Select “Port 1 COM2” and click on **Modify Setting**.

From the drop down menu, select the desired com port number: Choose a com port not used by your computer, including disabled but permanently assigned ports (i.e. infrared ports or touch screens). Click **OK** three times for each of the three windows.

The **Device Manager** window will refresh two or three times. Scroll down to **Ports (COM & LPT)**, expand and confirm the presence of “PRAM WSL-2 Port 1 (COMx)”, x being the com port number previously selected.

Close out all windows, reboot the computer and cycle power on the Serial Link.

Connect your serial device to the WSL-2, start the appropriate software to control the serial device. Remember to select the same com port as configured in Device Manager and confirm RS232 or RS485 protocol.

General Notes

When changing the ESSID of the WSL-2E via WiNet[®] Manager: **FIRST** change the ESSID of the WiLAN PC card to “ANY”, “NONE” or [blank], depending upon card’s requirements; **SECOND**, change the WSL-2’s ESSID; **FINALLY**, change the PC card’s ESSID to match that of the WSL-2’s.

When changing any other network settings, make the changes to the WSL-2E via WiNet[®] Manager **FIRST**, then make the appropriate change(s) in the wireless PC card client software and Network Properties. It may be necessary to reboot your computer and cycle the power on the WSL-2 (leave power off for five seconds).

ALWAYS reboot your computer when you add or change any com ports through SSM (Windows[®] 95/98/ME), Device Manager or Hardware Wizard (Windows[®] 2000/XP).

If your PC card doesn’t associate with the WSL-2E, AND you’re sure all network parameters and ESSID are correct, cycle the power on the WSL-2E (leave power off for five seconds).

If you at all believe multiple Serial Links will be on site at the same time, make sure you change the ESSID of your system (both the WSL-2E *and* the PC card client adapter software) to something unique. We recommend using your company name plus a number. This will eliminate the chance of your computer logging onto the wrong WSL-2E, or someone else logging onto your WSL-2E.

Once the WSL-2E is configured, it is not necessary - or desirable - to keep WiNet[®] Manager or Serial Server Manager open.

If using WiNet[®] Manager’s security feature, make sure the WiLAN PC card’s MAC address is in the list of recognized devices, found under the “Security” tab.

Application Notes

XTA Electronics

Confirm that all XTA devices are properly configured for networking with AudioCore: It is REQUIRED that the first unit in the chain that’s connected to the Serial Link (or directly to a PC) MUST be set to ID #1, MASTER mode and the correct interface (RS232 or RS485) is selected. Confirm all other XTA devices have unique ID numbers and are set to SLAVE. ALL units must be set to the same baud rate.

In AudioCore, in the *RS232 Configuration* dialog box under the *Remote* menu, make sure “Use Acknowledge Cmd” is checked. **“Hardware Flow Control” and “Radio Modem” should be UNchecked.**

If you have a large number of units networked (approximately 12 or more) and AudioCore is failing to find them all, reduce the baud rate of all units and Audio Core. You may also try checking “Radio Modem” in the *RS232 Configuration* dialog box under the *Remote* menu, then click on the “Advanced” button and then adjust the *Maximum Wait Time* (start with 500mS) and *Number of Retries* (start with 3).

DP20x units must have firmware version 4.01 or greater installed in order to be found by AudioCore.

It is strongly suggested that you always use the latest version of AudioCore.

Yamaha Corporation

Yamaha products require a true null modem cable for connecting to a PC or Serial Link.

The available com ports as indicated by PM1D Manager and DME Manager do not always track with the com port number assigned in Serial Server Manager (Windows[®] 95/98/ME) or Device Manager/Hardware Wizard (Windows[®] 2000/XP). If you find this is the case, try all com ports as available in the Yamaha software. Remember to confirm that the com port assigned in Serial Server Manager (Windows[®] 95/98/ME) or Device Manager/Hardware Wizard (Windows[®] 2000/XP) is not one permanently assigned by the computer for its own use. Close, then restart the Yamaha software with each change/attempt.

If running Windows[®] XP, do NOT use Service Pack 1. A known conflict exists.

Windows[®] XP Tablet Edition does not work at this time.

If the CSD control surface is connected to the PM1D engine, confirm that PC control is permitted.

It is strongly suggested that you always use the latest version of PM1D manager and firmware.

Turn off ALL unnecessary applications (don't just minimize), including those in the system tray.

A strong RF connection is required

The faster the PC processor and buss speeds, the better.

BSS Audio

When connecting to a Soundweb[®] device, use a null modem cable connected to the rear DB9 serial connector.

Computers With Built-In WiLAN Cards

Typically, these computers are using 35 to 45 milliwatt cards with internal antenna(s). The combination of low RF power and the computer body blocking usually all but one plane of the antenna(s) results in significantly less than desirable range and connection stability.

Computers without RS232 DB9 ports

As newer portable computers ship without actual RS232 DB9 connectors, an adapter is required to gain a serial port connection. Two types of adapters are available: USB and PCMCIA cards. USB type adapters, at this time, seem not to provide a true RS232 port and therefore may exhibit communications anomalies.

PCMCIA card adapters offer a true RS232 port and thus will provide more reliable serial communications.

Window[®] XP

Window[®] XP has built-in support for configuring wireless networks (e.g. ESSID). Should you desire to use the driver(s) and utility(ies) supplied by the card manufacturer:

- Insert WiLAN PC card into the computer
- Go to Control Panels; then Network Connections
- Choose the wireless connection you wish to change
- Select Properties; then Wireless Networks
- Uncheck "Use Windows[®] to configure my wireless network settings."

Window[®] XP and Cisco 350 series WiLAN PC card driver

Under Windows[®] XP, there is a known compatibility issue with the Cisco 350 series of WiLAN PCMCIA cards (PRAM Technologies' PC-EP and PC-HP) whereby the data link will experience intermittent, momentary dropouts. Under standard networking conditions this would not be noticeable, however some serial devices with more critical timing requirements may not function properly (e.g. Yamaha PM1D, DME32).

PRAM Technologies' strongly recommends using the PC-2EP or PC-2HP WiLAN PCMCIA cards with Window[®] XP.

AN IMPORTANT POINT ABOUT 2.4GHz RF PROPOGATION

At 2.4GHz (2400MHz), we are solidly in the microwave band. **Unobstructed** line of sight (LOS) between antennas is **CRITICAL** in order to achieve a strong, stable RF link. LOS means that if you were to put your eye at the position of one antenna, you would see the target antenna directly: **NO** obstructions are blocking your view.

At this frequency, an obstruction is ANYTHING in the way, non-metallic as well as metal based objects. Although you will in fact achieve a certain amount of penetration through non-metallic obstructions, as well as multiple paths around the objects at short distances, your goal should be unobstructed line of sight.

2.4GHz is the operating frequency of the 802.11b/g IEEE standards and therefore other frequency bands are not available.

PRAM Technologies has a full line of gain antennas, antenna mounts, low loss extension coax and amplifiers to address any situation. Please contact your dealer or the factory for any assistance.

Troubleshooting

User: "It doesn't work!"

PRAM: "Could you be a bit more specific?"

User: "It doesn't work at all."

OK, bear with us: Let's start with the simple items and work from there.

On the Serial Link, check that;

- Power is on.
- RS232/RS485 switch is in the correct position.
- The antenna(s) are connected.

On the serial device(s) to be controlled, check that;

- The device(s) are configured correctly for interconnection between devices, and between the first device in the chain and the Serial Link (treat the Serial Link as a "PC").
- The device is configured to allow PC control.
- All interconnecting cables are of the proper type, in proper working condition and properly connected.
- Power is on.

On the PC with the wireless card, check that;

- The WiLAN PC card is configured correctly for ESSID (Serial Link default is "pram") and mode ("AP" or "infrastructure"). Please refer to the WiLAN PC card manufacturer's user guide.
- Antenna(s) are connected to PC card.
- The computer's networking parameters for the WiLAN PC card are configured correctly (TCP/IP is installed, the IP address and subnet mask are correctly set). Please refer to the applicable Windows[®] user's guide or your IT person.
- The com port chosen in Serial Server Manager[®] (SSM) or Device Manager isn't used by the PC for any other port (Infra Red, modem, proprietary connector, etc.), even if disabled.
- The appropriate software for the device to be controlled is installed and the com port selection matches that which is designated in Serial Server Manager[®] (SSM) or Device Manager.

In general, check that;

- At least one Serial Link antenna and WiLAN PC card antenna must have unobstructed line of sight to each other.
- Any com port change requires cycling the power on the Serial Link for 5 seconds AND rebooting the computer. If in doubt after ANY configuration change; cycle power AND reboot.

Once all the above parameters have been set and confirmed, let's start testing.

- 1) With the Serial Link powered up, and the antenna(s) connected:
 - A) Start the WiLAN PC card's client utility program and confirm that the card "associates" with the access point (Serial Link) having an ESSID of "pram".
 - B) Start the WiNet[®] application. WiNet[®] should find the Serial Link (an access point having the name "PRAM Technologies") and BOTH the "wireless" AND "serial" IP addresses.

- 2) A) Using a null modem cable (female DB9 connectors on both ends), connect the Serial Link to the DB9 RS232 port on the PC (if the PC has no DB9 RS232 connector, you'll need either a USB to RS232 or a PC card to Serial adapter). On the rear of the Serial Link, ensure the serial selector switch is *in* for RS232.
- B) Open two HyperTerminal windows: The first with the com port designation corresponding to the WiLAN PC card as designated in Serial Server Manager[®] (SSM) or Device Manager; the second with the com port designation corresponding to the physical com port on the PC (or the adapter).
- C) After “connecting” in BOTH HyperTerminal windows, typing in the first HyperTerminal window (the WiLAN card's) should result in the characters appearing in the second window with the RX data LED on the Serial Link indicating signal. Next, typing in the second window (the PC's DB9 connector), the characters should appear in the first window and the TX data LED should now show data flow.

If both tests pass, there is proper bi-directional communication between the PC and the Serial Link.

- 3) If either test fails, check and confirm:
 - WiLAN PC card settings, including ESSID and TCP/IP;
 - PC network property settings;
 - Serial protocol switch position;
 - Serial Server Manager[®] (SSM) or Device Manager com port settings;
 - WiNet[®] ESSID and IP address settings.
- 4) Once you have established communication between the PC and the Serial Link, confirm the serial devices are configured and working properly by making a hardwire connection directly between the device and the PC. Now run the device's software and attempt PC control of the device.
- 5) If the PC fails to control the device, please refer to the manufacturer's user guides for both the hardware and software. You may also need to consult with the user guides for any USB or PC card to serial port adapters and the appropriate Windows[®] operating system if applicable.
If you can control the device from the PC via the hardwire connection, disconnect the hardwire and reconnect the Serial Link.
- 6) Confirm that the device's software com port selection matches that in Serial Server Manager[®] (SSM) or Device Manager.
- 7) If after following and confirming the installation procedures, and then confirming each troubleshooting step, the Serial Link still doesn't communicate with either the PC or the serial device, please call PRAM Technologies for assistance.

*Thank you for
your purchase!*

The team at PRAM