Connecting a Model PEL 102/103/105 to DataView[®]



ENGLISH

Tutorial



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Introduction

Welcome to the tutorial for connecting a Power and Energy Logger Model PEL 100 Series instrument to a computer running the DataView[®] PEL Control Panel. The PEL Control Panel is designed for working with the Models PEL 102, 103, and 105. These instruments offer a variety of connection options, including:

Connection Type	PEL 102/103	PEL 105
<u>USB</u>	\checkmark	✓
Bluetooth	\checkmark	\checkmark
Ethernet LAN	\checkmark	✓
Ethernet direct, APIPA (Automatic Private IP Addressing) mode		\checkmark
Ethernet Wi-Fi		\checkmark
Wi-Fi direct		\checkmark
IRD (Internet Relay Device) server		1

This tutorial explains how to set up each of these connection types.

Before You Begin

- This tutorial explains how to use the PEL Control Panel to enabling and disable various communication options. Some of these options can also be enabled/disabled through the instrument's front panel. Consult the user manual that comes with your PEL instrument for instructions on how to do this.
- The tutorial is designed to provide a hands-on experience. As we explain each task, we suggest you follow along using your own instrument and computer. So before you begin, install DataView (version 3.15 or later) with the PEL Control Panel. If you need assistance installing DataView, consult your instrument's user manual.
- For detailed information about using the PEL Control Panel, open the Control Panel and press F1 to open the Help system. (The Help system is context-sensitive and provides specific information about the task you are currently performing.) Another good source of information is the AEMC YouTube channel; see https://www.youtube.com/user/AEMCinstruments.
- We encourage you to proceed with this tutorial at your own pace. If there are lessons you'd like to repeat, simply stop the tutorial and go back to the beginning of the lesson. Conversely, feel free to skip any topics with which you are already familiar.
- The instructions and screenshots in this tutorial assume you are running Windows 7. They should also apply to later versions of Windows; although you may encounter some small differences when using these operating systems.
- The steps described in this tutorial were performed with the PEL Model 105. Configuration
 options may vary slightly with other PEL models.

Lesson 1: USB



1. Connect the PEL to an available USB port on the computer using the supplied USB cable. Provided you have a "default" Windows layout with the taskbar at the bottom of the screen, a popup should appear in the lower right corner indicating that the device driver is installing.



2. Once this driver installation is complete, open the PEL Control Panel by either (a) double clicking

the icon on your desktop, or (b) opening the Start menu and navigating to the PEL Control Panel program located in the DataView folder:



3. To connect to an instrument for the first time either (a) select **Instrument** from the Control Panel

menu bar and click **Add an Instrument**, or (b) click the **content** icon in the toolbar. Either action opens the **Add an Instrument Wizard** dialog box.

Instrument Wizard	
How do you want to communicate with an instrument connected This Wizard helps you add an instrument to your PEL Network.	d to this computer or on a network?
Select the option which describes the type of connection you wa A local instrument connected to this computer with:	ant to use: Connect a USB cable between a USB port on the computer and the USB p of the instrument.
 Ethernet (LAN or Wi-Fi) an IRD server 	
Click on Next to proceed.	
	<pre>< Back Next > Cancel He</pre>

4. Ensure the **USB** radio button is selected, and then click **Next**. This displays the **Add an Instrument Wizard – USB** dialog box:

Add an Instrument Wizard	I - USB
Select the desired	d instrument from the drop down list.
Instrument:	PEL105 Refresh
	Make sure that your instrument is powered on and is connected to a USB port on this computer.
	If the instrument does not appear in the list, open this computers Device Manager and look for an entry named PEL with a question mark and/or exclamation symbol under the Other devices group. If listed under Other device you will need to reinstall the driver.
	< Back Next > Cancel Help

5. The **Instrument** field lists any PEL instrument(s) currently connected to the computer via USB. Click the downarrow to display a drop-down list of all available instruments. Select the appropriate PEL and click **Next**. 6. If the connection is successful, the following screen will appear:

Add a	n Instrument Wizard	×
	You want to communicate with an instrument connected to this computer or on a network. This Wizard helps you add an instrument to your PEL Network.	
	A direct connection with the instrument was established.	
	< Back Finish Cancel H	elp

Select Finish to exit the Add an Instrument Wizard and return to the main Control Panel screen.

Lesson 2: Bluetooth



Bluetooth provides a direct connection similar to USB; however it requires several prerequisite steps.

- 1. Ensure the computer has Bluetooth capability, either built-in or via a Bluetooth/USB adapter. (The remaining steps in this lesson assume you are using an adapter. Your steps and screens may be different depending on how your computer is configured for Bluetooth.)
- 2. Ensure Bluetooth is enabled on the PEL, as indicated by the Bluetooth LED on the instrument's front panel.

On the PEL 103 and 105, you can enable Bluetooth through the instrument's front panel interface, as instructed by the instrument's user guide.

On the PEL 102, you must connect the instrument to the computer through a USB connection (see Lesson 1) and use the Control Panel to enable Bluetooth. (Consult the Control Panel Help for instructions.)

3. You must now pair the instrument to the computer. Click the **Start** button and select **Devices and Printers.**



4. Click **Add a device** on the top left. The computer scans for all Bluetooth devices within the range of its Bluetooth radio. When finished, available devices are listed in the **Add a device** screen.



- 5. If the PEL to which you want to connect is listed, select it. (You can identify the PEL by its serial number.) Then click **Next** to begin the pairing process.
- 6. When prompted for a pairing code, enter the default pairing code (0000) and click **Next**.
- 7. The popup message **Installing device driver** should appear on the lower right of the screen. Clicking the message will open a dialog box that is similar to the following:

Driver Software Installation		×
Installing device driver softwa	are	
Bluetooth Peripheral Device Bluetooth Peripheral Device	Searching Windows Update Searching Windows Update	
Obtaining device driver software from Skip obtaining driver software from Wi	Windows Update might take a while. indows Update	
		Close

NOTE: The driver is not fully installed until there are green checkmarks in the preceding dialog box. Depending on your system, the time the process requires will vary. Once the correct pairing code is entered, the screen will display the message **The device has been successfully added to this computer**. However, communication to the device is still not possible until the Bluetooth drivers are fully installed, and the green checkmarks appear.

8. When the pairing process is complete, open the PEL Control Panel. You can now create a connection to the instrument. The steps for doing this depend on whether or not the instrument is already connected to DataView.

If the instrument is not connected, skip the remainder of this step and go to step 9 below.

If the instrument is already connected, you can either modify the existing connection, or <u>remove</u> the PEL and re-add it as a new instrument. To modify an existing connection, click the

EXAMPLE button to display the Add an Instrument Wizard, and proceed as instructed in step 10. To delete the connection, highlight the instrument in the navigation frame. Then select **Instrument** in the menu bar, select **Remove an Instrument**, and click **Yes** when prompted to confirm the deletion.

- 9. Either (a) select Instrument from the Control Panel menu bar and click Add an Instrument, or
 (b) click the icon in the toolbar. Either action opens the Add an Instrument Wizard dialog box.
- 10. Select the **Bluetooth** radio button and click **Next**. This displays the **Add and Instrument – Bluetooth** dialog box.

I Add an Instrument Wizard	- Bluetooth
Select the desired instru	rument from the drop down list.
Instrument: Build	▼
Make Make The I Bluet If th Selec	te sure that your instrument is paired with this computer, and powered on. The sure that the Bluetooth radio is ON on your PC and on the instrument. Bluetooth connection between the PC and the instrument must have been paired previously using the tooth Devices control panel. The instrument name does not appear in the list, you can try to use the COM port name it is associated with. The outgoing COM port if necessary.
	< Back Next > Cancel Help

- 11. When this dialog box first opens, the computer builds a list of PEL instruments available for Bluetooth connection. When this process is finished, click the downarrow to display a drop-down list of all available instruments. Select the appropriate PEL and click **Next**.
- 12. If the connection is successful, a screen appears informing you of this. Click **Finish** to exit the Add an Instrument Wizard and return to the main Control Panel screen.

Lesson 3: Ethernet LAN



This lesson assumes the PEL instrument to which you want to connect is located on your local network via an Ethernet cable, and the computer is also connected to that network via LAN or Wi-Fi.

To set up an Ethernet LAN connection, you must be connected to the instrument via a USB (<u>Lesson 1</u>) or Bluetooth (<u>Lesson 2</u>) connection. Then proceed as follows:

- 1. Ensure that an Ethernet cable is connected to the network port on the front panel of the instrument, with the other end of the cable connected to an appropriate network jack (wall or router) which has access to the local network.
- 2. In the PEL Control Panel, highlight the instrument in the navigation frame. Then select

Instrument in the menu bar, and click **Configure** (or click the *icon* in the toolbar) to display the Configure Instrument dialog box.

eral Commun	ication M	leasurement	Curr	ent Se	ensors	Recording	Meters				
Bluetooth											
Enable Bluet	tooth										
Pai	iring code:	0000									
	Name:	PEL 105	-13446	51NEH			(25	5 ASCI	I chara	icters max)	
	Visibility:	Visible			Inv	isible					
Network											
MAG	C address:	1E:07:80:0	0:00:0)7						Edit	
Enable DHC	P	10			40			. [0.55	055 055	-
I	P address:	10 .	1.	11 .	40		Subnet ma	ask:	255	. 255 . 255 .	0
Gatewa	y address:	10 .	1.	11 .	1		P	ort:	3041	(1 to 65535)	
							Proto	col:	O UDP	TCP	
Ni-Fi											
🗸 Enable Wi-F	ï						Auth	nentica	ation:	WPA2	•
	Mode:	Connect	to a ro	uter		Oirect			ĺ	Bosot	
	SSID:	bvfmc gbvb	v		(32 AS	CII character	rs max)		l	Reset	_
Pa	assword:	12345678			(8 to 6	4 ASCII char	acters)				
RD Server sett	tings may r	not be modifi	ed whil	e com	munica	ting via an IP	type conn	ection	1		
Enable									l	Edit IRD Serve	r –
Conne	ction type	: Etherne	et	N ()	/i-Fi						
	Password	Slade 123									
_									ſ	Register	
Seri	ial number	134460NE	H						l	Register	
501				_	_				_	Lond From Eile	_
						Save To F	ile			Load From File	

4. Ensure the Enable DHCP checkbox is checked. DHCP (Dynamic Host Configuration Protocol) is a standard network protocol for dynamically distributing network configuration parameters, such as IP addresses for interfaces and services. Also take note of the settings in the Port number and Protocol (UDP or TCP) fields. The default port is 3041.

NOTE: For PEL 102/103, the protocol defaults to UDP and TCP is not supported.

5. Click **OK**. DHCP will automatically assign the instrument an IP address. (This process may take a few moments to complete.) When the IP address is assigned, you can view it by selecting the instrument's name in the navigation frame and clicking the **IEEEE** button to display communication status information in the data frame.

e Edit View Instrument Tools	Help	
	1 🖨 😫 😹 😹	🞯 🚿 🖪 🛃 🔚 🎥 😂 🗶
workstation	Status	
PEL Network		11 1251
- S Recorded Sessions	Communication	
Real-time Data	MAC activess	15:07:00:00:09
PEL105-134461NEH	IP address	10.1.11.40
- S Recorded Sessions	Gateway address	10.1.11.1
Real-time Data	Subnet mask	255.255.255.0
- MVD	Network port	3041
Recorded Sessions	Protocol	UDP
Real-time Data		
	Wi-Fi	Enabled
PELIOS DV Test	Wi-Fi mode	Direct
- Recorded Sessions	Wi-Fi status	Ready
Real-time Data	Wi-Fi connection status	
B My Open Sessions	Wi-Fi signal strength	
PEL 105 200 ms20	WI-FI MAC address	00:07:80:FF:FF:09
1 min Summary	Wi-Fi IP address	192.168.1.1
Ass 1 min Common Line	Wi-Fi gateway address	192.168.1.1
I min Summary Har	Wi-Fi subnet mask	255.255.255.0
1 s Measurements	Wi-Fi network port	80
200 ms Measuremer	Wi-Fi protocol	UDP
Total Energies and C	100 100	

This screen also displays the network port and protocol. Make note of these settings, as well as the IP address; this information will be needed to configure the connection.

- 6. You can now create a connection to the instrument. To do this, you can either modify the existing USB connection, or remove the PEL and re-add it as a new instrument. To modify an existing connection, click the **second** button to display the Add an Instrument Wizard dialog box, and proceed as instructed in step 8. To delete the connection, highlight the instrument in the navigation frame. Then select **Instrument** in the menu bar, select **Remove an Instrument**, and click **Yes** when prompted to confirm the deletion.
- 7. Either (a) select Instrument from the Control Panel menu bar and click Add an Instrument, or
 (b) click the icon in the toolbar. Either action opens the Add an Instrument Wizard dialog box.
- 8. Select the Ethernet (LAN or Wi-Fi) radio button and click Next. This displays the Add and Instrument Network dialog box.

Add an Instrument Wizard - Network	
Specify the IPv4 address and port that the instrument is configured to use	
Address: 10 . 1 . 11 . 0 Search	
Port: 3041 Protocol: UDP TCP Example: 3041	
Make sure that your instrument is connected to the network, is powered on and has been assigned an IP address. The instrument (depending on how it was configured) obtains an IP address from the network (via DHCP) or was assigned one via a USB connection. Warning: the dynamic address can be regularly renewed by the DHCP server. If manually assigned an address make sure another device on the same network has not been assigned the same address. If the PEL is not located on the same network subnet as this computer, you can enter the PEL subnet address and then use the Search button to locate the PEL.	
< Back Next > Cancel Help	

- 9. Enter the PEL's IP address, protocol, and port number as displayed in the instrument status screen (see step 5 above). When finished, click **Next**.
- 10. If the connection is successful, a screen appears informing you of this. Click **Finish** to exit the Add an Instrument Wizard and return to the main Control Panel screen.

Lesson 4: Ethernet Direct (Point-to-Point, APIPA Mode)



Point-to-Point Ethernet communication establishes a direct link between the computer and the instrument via Ethernet cable. To do this, you must be connected to the instrument via a USB connection (<u>Lesson</u> <u>1</u>). Then proceed as follows:

1. In the PEL Control Panel, highlight the instrument in the navigation frame. Then select

Instrument in the menu bar, and click **Configure** (or click the *icon* in the toolbar) to display the Configure Instrument dialog box.

	Communication	1easurement	Current	Sensors	Recording	Meters		
Blueto	oth							
🗸 En	able Bluetooth							
	Pairing code	: 0000	10446458				(a.e	
	Name	PEL 105	-13446 INE	H			(25 ASC	CII characters max)
	Visibility	i 🍥 Visible		Inv	isible			
Netwo	rk							
	MAC address	: 1E:07:80:0	0:00:07					Edit
	able DHCP	10		40				255 255 255 0
	IP address	10 .	1 . 11	. 40		Subnet	mask:	255 . 255 . 255 . 0
	Gateway address	10 .	1 . 11	. 1			Port:	3041 (1 to 65535)
						Pro	otocol:	O UDP O TCP
	SSID:	bvfmc gbvb	v	(32 AS	CII character	's max)		Reset
	Password:	12345678		(8 to 6	4 ASCII chara	acters)		
	erver settings may	not be modifi	ed while co	mmunica	ting via an IP	type co	nnectior	n
-IRD Se								Edit IRD Server
-IRD Se	able							
- IRD Se √ En	able Connection type	: () Etherne	t 🔘	Wi-Fi				
−IRD Se	able Connection type Password	Slade 123	t 🔘	Wi-Fi				
⊂IRD Se	able Connection type Password	:) Etherne	.t 🔘	Wi-Fi				
− IRD Se √ En	able Connection type Password Serial number	O Etherne Slade 123 134460NE	t O	Wi-Fi				Register

- 3. Ensure the **Enable DHCP** checkbox is checked. If not, select it. Also take note of the settings in the **Port number** field. The default port is 3041. Then click **OK**.
- 4. Plug one end of an Ethernet cable into the instrument's Ethernet port, and the other end into the computer's Ethernet port. Consult the user documentation that comes with the PEL and/or your computer to locate these ports. The DHCP automatically assigns an IP address to the PEL.

- 5. Highlight the instrument in the navigation frame and click **EEEEE**. This displays the Communication Status screen. Make note of the displayed IP Address.
- 6. You can now create a connection to the instrument. To do this, you can either modify the existing USB connection, or remove the PEL and re-add it as a new instrument. To modify an existing connection, click the source button to display the Add an Instrument Wizard, and proceed as instructed in step 8. To delete the connection, highlight the instrument in the navigation frame. Then select **Instrument** in the menu bar, select **Remove an Instrument**, and click **Yes** when prompted to confirm the deletion.
- 7. Either (a) select **Instrument** from the Control Panel menu bar and click **Add an Instrument**, or

(b) click the **Example** icon in the toolbar. Either action opens the **Add an Instrument Wizard** dialog box.

8. Select **Point-to-point Ethernet cable (APIPA mode)** and click **Next**. This displays the **Add and Instrument – Network** dialog box:

Add an Instrument Wizard - Network
Specify the IPv4 address and port that the instrument is configured to use
Address: 169 . 254 . 0 . 100 Search
Port: 3041 Protocol: O UDP O TCP Example: 3041
Make sure that a network cable is connected directly between the Ethernet port of your computer and the Ethernet port of the instrument. A cross over cable may be required depending on the type of network port in your computer.
< Back Next > Cancel Help

- 9. Enter the PEL's IP address, protocol, and port number as displayed in the instrument status screen (see step 5 above). When finished, click **Next**.
- 10. If the connection is successful, a screen appears informing you of this. Click **Finish** to exit the Add an Instrument Wizard and return to the main Control Panel screen.

Lesson 5: Wi-Fi Ethernet



This lesson assumes the PEL 105 instrument to which you want to connect has never before been connected to the computer via Wi-Fi.

To set up an Ethernet Wi-Fi connection, you must be connected to the instrument via a USB (<u>Lesson 1</u>) or Bluetooth (<u>Lesson 2</u>) connection. You must also have available the following information about your Wi-Fi router:

- SSID of the wireless network
- port number
- password

Consult your network administrator or IT department if you need help obtaining this information. Then proceed as follows:

- 1. Ensure the computer is connected to the network via Ethernet or Wi-Fi connectivity.
- 2. Ensure Wi-Fi is enabled on the PEL 105, as indicated by the Wi-Fi indicator on the instrument's front panel. You can enable Wi-Fi through the instrument's front panel interface, as instructed by the instrument's user guide.
- 3. In the PEL Control Panel, highlight the instrument in the navigation frame. Then select

Instrument in the menu bar, and click **Configure** (or click the *icon* in the toolbar) to display the Configure Instrument dialog box.

	Communication	Measurement	Current S	Sensors	Recording	Meters	5			
Blueto	ooth									
🔽 Er	able Bluetooth									
	Pairing code	DEL 105	-134461NE	н			(25 450	II charad	ters max)	
	Vicibility	······································		() Tou	icible		(20 100			
	visibility	Visible		O Inv	ISIDIE					
Netwo	MAC address	: 00:0B:3C:	5D:24:4C							
V Er	able DHCP								Edit	
	IP address	: 10 .	1 . 10	. 40]	Subnet	t mask:	255 .	255 . 255 . 0	
	Gateway address	10 .	1 . 10	. 249	i i		Port:	3041	(1 to 65535)	
						Pr	otocol:	QUDP	TCP	
	SSID:	PEL 105-W	liFi	(32 AS	(32 ASCII characters max)			Scan		٦
	Password:	12345678		(8 to 6	8 to 64 ASCII characters)		5)		Scan	
	Port:	80	1 to 65535)		Protocol: ()	UDP	© TCP	L	lest	
IRD S	erver settings may	not be modif	ied while cor	mmunica	ting via an IP	type co	onnectio	n		
	able								Edit IRD Server	
Er	Connection type	e: () Etherne	et 🔘	Wi-Fi						
√ Er		1234567	39							
[√] Er	Passwor	1						[Register	
√ Er	Passwori Serial numbe	r: 134461N	EH					C		

- 5. Ensure Enable Wi-Fi is checked. If not, select it.
- 6. Select **Connect to a router** if it is not already selected.
- 7. Enter the router's SSID number and password in the **SSID** and **Password** fields.
- 8. Enter the router's port number. By default, this is 3041.
- 9. Select the router's communication protocol. By default, this is UDP.
- 10. Check the setup by pressing the **Test** button. The following dialog box will appear:

Testing Wi-Fi		×
Status MAC Address IP Address	Writing Wi-Fi parameters	
	OK Cancel	

During this process, the instrument will attempt to communicate with the router.

If the test is successful, the Status field in the Testing Wi-Fi dialog box will change to Success.

- 0		×
Status	Sussan	
Status	Success	
MAC Address	00:07:80:FF:FF:07	
IP Address	192.168.1.9	

The dialog box will also display the MAC Address and Wi-Fi IP address the router has assigned to the instrument.

11. Click the **EXERCISE** button to display communication status information in the data frame.

PEL Control Panel - C:\Users\dmcca	rrick.AEMC\Documents\DataView\DataFiles\PEL	\Samples\PEL 105 200 ms20.icp
File Edit View Instrument Tool	is Help	
📂 🖯 🗠 🏷 📑	1 🖶 😂 🗳 📓 😰	🚿 🗄 🛃 🔚 🖕 🗶 🔇
	Status	
PEL Network PEL105-134465NEH	A DET P	
Recorded Sessions	Communication	
Real-time Data	MAC address	1E:07:80:00:00:09
PELIOS-134461NEH	IP address	10.1.11.40
- S Recorded Sessions	Gateway address	10.1.11.1
Real-time Data	Subnet mask	255.255.255.0
I MVD	Network port	3041
- 😚 Recorded Sessions	Protocol	UDP
Real-time Data		
PEI 103 DV Test	Wi-Fi	Enabled
Carbo by rest	Wi-Fi mode	Direct
Recorded Sessions	Wi-Fi status	Ready
Real-time Data	Wi-Fi connection status	
My Open Sessions	Wi-Fi signal strength	
🖻 🦰 PEL 105 200 ms20	WLEI-MAC address	00:07:80:FF:FF:09
1 min Sumpary	Wi-Fi IP address	192.168.1.9
1 min Summary Har	Wi-Fi gateway address	192.168.1.1
1 c Measure	Wi-Fi subnet mask	255.255.255.0
Interest and	Wi-Fi network port	80
200 ms Measuremen	Wi-Fi protocol	UDP
Total Energies and C		
	The second se	LOCAL PROPERTY AND AN ADDRESS OF A

Make note of the Wi-Fi address, port, and protocol settings.

12. Find the "communication" icon at bottom right in the computer's taskbar. If the computer has a default Windows 7 layout, this icon will appear as follows:



(If your computer is connected to a LAN network but also has Wi-Fi capability, the icon may appear as **1**.) Left-click the icon to display a list of available wireless networks, identified by their SSIDs.

- 13. Click the network to which you want to connect. This will be the same SSID entered in step 7 above. Then click **Connect**. If prompted for a password, enter it (see step 7).
- 14. In the PEL Control Panel, create a connection to the instrument.

If the instrument is not connected, skip the remainder of this step and go to step 15 below.

If the instrument is already connected, you can either modify the existing USB connection, or remove the PEL and re-add it as a new instrument. To modify an existing connection, click the button to display the Add an Instrument Wizard, and proceed as instructed in step 16. To delete the connection, highlight the instrument in the navigation frame. Then select Instrument in the menu bar, select Remove an Instrument, and click Yes when prompted to confirm the deletion.

- 15. Either (a) select **Instrument** from the Control Panel menu bar and click **Add an Instrument**, or
 (b) click the **inclusion** icon in the toolbar. Either action opens the **Add an Instrument Wizard** dialog box.
- 16. Select the Ethernet (LAN or Wi-Fi) radio button and click Next. This displays the Add and Instrument Network dialog box.
- 17. Enter the router's IP address, protocol, and port number as displayed in the instrument communication status screen (see step 11 above). When finished, click **Next**.
- 18. If the connection is successful, a screen appears informing you of this. Click **Finish** to exit the Add an Instrument Wizard and return to the main Control Panel screen.

Lesson 6: Wi-Fi Direct



This lesson assumes the PEL 105 instrument to which you want to connect has never before been connected to the computer via Wi-Fi.

To set up a Wi-Fi direct connection, you must be connected to the instrument via a USB (<u>Lesson 1</u>) or Bluetooth (<u>Lesson 2</u>) connection. You must also have available the PEL 105's SSID, port number, and password. Then proceed as follows:

- 1. Ensure the computer has Wi-Fi capability, either built in or via a Wi-Fi adapter.
- 2. Ensure Wi-Fi is enabled on the PEL 105, as indicated by the Wi-Fi indicator on the instrument's front panel. You can enable Wi-Fi through the instrument's front panel interface, as instructed by the instrument's user guide.
- 3. In the PEL Control Panel, highlight the instrument in the navigation frame. Then select

Instrument in the menu bar, and click **Configure** (or click the *icon* in the toolbar) to display the Configure Instrument dialog box.

nfigure							×
General Communication	leasurement	Current	Sensors	Recording	Meters	;	
Enable Bluetooth Enable Bluetooth Pairing code:	0000						
Name:	PEL 105	134461NE	H			(25 ASC	CII characters max)
Visibility:	Visible		🔘 Invi	isible			
Network MAC address:	1E:07:80:00):00:09					Edit
IP address:	10 . 1	1 . 11	. 36		Subnet	t mask:	255 . 255 . 255 . 0
Gateway address:	10 . :	1 . 11	. 1			Port:	3041 (1 to 65535)
					Pr	otocol:	O UDP TCP
Enable Wi-Fi Mode: SSID:	Connect t PEL 105-WiF	o a router i	(32 AS	Oirect OII character	A rs max)	uthentio	ation: WPA2 Reset
Password:	12345678		(8 to 6	4 ASCII char	acters)		
─ IRD Server settings may r ✓ Enable Connection type	not be modifie	d while co	mmunica Wi-Fi	ting via an IP	o type co	onnection	edit IRD Server
Password	123456789)					
Serial number	134461NE	Η					Register
				Save To F	File		Load From File
						ОК	Cancel Help

- 5. Ensure Enable Wi-Fi is checked. If not, select it.
- 6. Select **Direct** if it is not already selected.
- 7. Select the authentication type (**Open** or **WPA2**). If you select WPA2, the **Password** field appears.
- 8. The PEL 105's SSID appears in the **SSID** field. A default SSID is assigned to the instrument; you can accept the displayed default or enter a new SSID.

If WPA2 is selected as the authentication type, enter the password. (This password will be the Security Key that Windows will request when you connect to the SSID as described in step 10 below.) As with the SSID, a default password is assigned to the instrument; you can accept the displayed password or change it.

Note that both the original SSID and password appear on a tag attached to the instrument when you purchase it.

9. Find the "communication" icon at the bottom right in your computer's taskbar. If the computer has a default Windows 7 layout, this icon will appear as follows:



(If your computer is connected to a LAN network but also has Wi-Fi capability, the icon may appear as **1**.)

Left-click the icon to display a list of available SSIDs.

Wireless Network Connection	^
PEL105-WiFi	llte
	Connect
··	-1

- 10. Click the SSID to which you want to connect. This will be the same SSID entered in step 8 above. Then click **Connect**. If prompted for a Security Key, enter the password defined in see step 8.
- 11. In the PEL Control Panel, create a connection to the instrument.

If the instrument is not connected, skip the remainder of this step and go to step 12 below.

If the instrument is already connected, you can either modify the existing USB connection, or <u>remove</u> the PEL and re-add it as a new instrument. To modify an existing connection, click the

EXAMPLE button to display the Add an Instrument Wizard, and proceed as instructed in step 13. To delete the connection, highlight the instrument in the navigation frame. Then select **Instrument** in the menu bar, select **Remove an Instrument**, and click **Yes** when prompted to confirm the deletion. 12. Either (a) select **Instrument** from the Control Panel menu bar and click **Add an Instrument**, or

(b) click the **Example** icon in the toolbar. Either action opens the **Add an Instrument Wizard** dialog box.

13. Select the **Wi-Fi direct** radio button and click **Next**. This displays the **Add and Instrument** – **Network** dialog box, with the network-related fields grayed out.

Add an Instrument Wizard - Network	
Make sure that your computer is network connected to the Wi-Fi of the instrument.	
Address: 192 . 168 . 1 . 1	
Port: 80 Protocol: UDP TCP	
When connecting to a PEL with Wi-Fi direct the IP address of the instrument port 80 and the protocol is TCP.	t is fixed at 192.168.1.1,
< Back Next >	Cancel Help

- 14. Click Next. If the connection is successful, the message A direct connection has been established with the instrument appears.
- 15. Click **Finish** to exit the Add an Instrument Wizard and return to the main Control Panel screen.

Lesson 7: IRD Server



You can establish a connection from a computer to a PEL 105 via the IRD (Internet Relay Device) server. This is a computer that facilitates communication between a PEL 105 and a computer running the PEL Control Panel on a private network connected to the internet. This enables you to connect your computer to instruments located on different private networks. The IRD server is hosted by AEMC Instruments and is made available as a free service to all PEL 105 owners.

The PEL 105 offers both an Ethernet and Wi-Fi option for IRD connection. When connected to a network that has internet access, the instrument will automatically register itself with the IRD server using the default serial number and password provided in the instrument.

To configure an IRD connection, your computer must be connected to the instrument via a USB connection (<u>Lesson 1</u>). Then proceed as follows:

1. In the PEL Control Panel, highlight the instrument in the navigation frame. Then select

Instrument in the menu bar, and click **Configure** (or click the kinch icon in the toolbar) to display the Configure Instrument dialog box.

	Communication	Measurement	Current Sen	sors Recording	Meters	S			
Blueto	nable Bluetooth Pairing cod	le: 0000				(25.105			
	Nam	e: PEL105	-134463NEH			(25 ASC	II chara	cters max)	
	Visibilit	y: 🔘 Visible) Invisible					
Netwo	MAC addres	s: 1E:07:80:0	0:00:08						
	IP addres	s: 192 . 10	68.1.1	111	Subne	t mask:	255	. 255 . 255	. 0
	Gateway addres	ss: 192 . 10	68.1.	1		Port:	3041	(1 to 6553	5)
					Pr	rotocol:	O UDP	OTCP	
🗸 En	nable Wi-Fi								
En	nable Wi-Fi Mode: SSID: Password:	Connect t NETCON Dataview7	to a router (3	O Direct 2 ASCII characte to 64 ASCII char	ers max) racters)		[Scan	
En	nable Wi-Fi Mode: SSID: Password: Port	 Connect t NETCON Dataview7 3041 (1) 	to a router (3 (8 1 to 65535)	O Direct 2 ASCII characte to 64 ASCII char Protocol: C	ers max) racters)) UDP	● TCP	[Scan Test	
VEn PD S SEn	Mode: Mode: SSID: Password: Port erver mable Connection typ		to a router (3 (8 1 to 65535)	O Direct 2 ASCII characte to 64 ASCII char Protocol: O	ers max) racters)) UDP	(€) TCP	[Scan Test Edit IRD Se	rver
FRD S En	nable Wi-Fi Mode: SSID: Password: Port erver nable Connection ty; Passwo	Oconnect t NETCON Dataview7 3041 (1	to a router (3 (8 1 to 65535) t OWi-I	O Direct 2 ASCII characte to 64 ASCII char Protocol: O	ers max) racters)) UDP	(€) TCP	[Scan Test Edit IRD Se	rver
PD S En	nable Wi-Fi Mode: SSID: Password: Port erver Connection typ Passwo Serial numb	Oconnect t NETCON Dataview7 3041 (1 2345678 er: 134463NE	to a router (3 (8 1 to 65535) t (WiH	Direct ASCII characte to 64 ASCII char Protocol:	ers max) racters)) UDP	© TCP	[Scan Test Edit IRD Se Registe	rver

- In the IRD Server section, ensure Enable is checked. If not, select it now. When this option is checked, the Password and Serial number fields appear. (To disable IRD server connection capability, de-select Enable.)
- 4. **Connection type** identifies the connection medium (Ethernet or Wi-Fi) through which the PEL 105 communicates with its private network. Ensure this setting matches the connection type used by your instrument.
- 5. To change the password, enter the new password in the **Password** field.
- 6. Edit IRD Server displays the IRD Server Settings dialog box. This lets you change the IRD server URL and port number. In North and South America, the default settings for these are as follows and in normal operation should not be changed:

URL: <u>www.ca-ird.com</u> Port number: 80

Outside of the Americas, the default URL is <u>www.ca-ird.eu</u>. (Note that at present both URLs go to the same physical server.)

7. If you make any changes to the IRD server settings, you must re-register the instrument with the server. To do this, click the **Register** button. A message box appears displaying the progress of the registration process. If successful, this message appears as follows:

Connection has Starting DNS lo DNS lookup su	s been reset okup ccessful	*
Establishing a TCP connection Registering wit Registration su	ILP connection nestablished th the IRD server uccessful	
	OK Cancel	

- 8. If the preceding message indicates registration did not complete successfully, review the IRD server settings described in steps 3 through 6 above. Otherwise click **OK**. Then click **OK** a second time to leave the Configure dialog box.
- 9. Highlight the instrument in the navigation frame and click **Communication Status** screen. Ensure the **IRD Server Status** setting is **Registration** successful:

P
gistration successful

10. You can now create a connection to the instrument. To do this, you can either modify the existing USB connection, or remove the PEL and re-add it as a new instrument. To modify an existing connection, click the **EXENT** button to display the Add an Instrument Wizard, and proceed as instructed in step 12. To delete the connection, highlight the instrument in the navigation frame. Then select **Instrument** in the menu bar, select **Remove an Instrument**, and click **Yes** when prompted to confirm the deletion.

11. Either (a) select **Instrument** from the Control Panel menu bar and click **Add an Instrument**, or

(b) click the **Example** icon in the toolbar. Either action opens the **Add an Instrument Wizard** dialog box.

12. Select the **IRD server** radio button and click **Next**. This displays the **Add and Instrument – IRD** dialog box.

Add an Instrument Wizard - IRD		X
Specify the serial number By default, this informati	r and the password for connection to the IRD server. on is available on QR code label of the instrument.	
IRD Server URL: PEL serial number: Password:	www.ca-ird.com IRD Server	
IRD S addre The in The in	erver is a server on the Internet used for connection to PEL instruments with private or dynamic IP sses. Istrument must be registered with the IRD Server with their serial number and a password. Istrument must also have access to the Internet to be able to communicate with the IRD server.	
	< Back Next > Cancel He	elp

- Check the IRD server URL and ensure it is appropriate for your region. If you need to change this, click the IRD Server button and select the URL (<u>www.ca-ird.com</u> or <u>www.ca-ird.eu</u> depending on your region).
- 14. Enter the PEL 105 serial number and password. The default settings for these are printed on a tag attached to the instrument when you purchase it. You can change the default password (see step 5 above); the serial number cannot be changed. When finished, click **Next**.
- 15. If the connection is successful, a screen appears informing you of this. If the PEL 105 and your computer are on the same private network, a screen appears as follows:

Add an	Instrument Wizard	X
	You want to communicate with an instrument connected to this computer or on a network.	
	This Wizard helps you add an instrument to your PEL Network.	
	Information supplied by the IRD server indicates that this PC and the PEL are located on the same subnetwork. They are now directly connected, bypassing the IRD server.	
	< Back Finish Cancel H	elp

In this situation, your computer will communicate directly with the instrument without going through the IRD server for the duration of this connection.

Click **Finish** to exit the Add an Instrument Wizard and return to the main Control Panel screen.

Contacting AEMC

For instrument repair and calibration: Chauvin Arnoux[®], Inc. d.b.a. AEMC[®] Instruments 15 Faraday Drive Dover, NH 03820 USA Phone: (800) 945-2362 (Ext. 360) (603) 749-6434 (Ext. 360) (603) 742-2346 or (603) 749-6309 Fax: E-mail: repair@aemc.com

(Or contact your authorized distributor.)

For Technical and Sales Assistance: Chauvin Arnoux[®], Inc. d.b.a. AEMC[®] Instruments 200 Foxborough Boulevard Foxborough, MA 02035 USA Phone: (800) 343-1391, (508) 698-2115 Fax: (508) 698-2118 E-mail: techsupport@aemc.com www.aemc.com