Getting Started with the Pinnacle 45

Pinnacle Configurations

The Pinnacle 45 kHz Acoustic Doppler Current Profiler (ADCP) is available in two configurations:

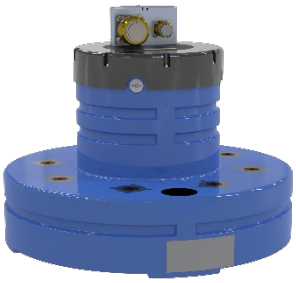
Direct-Reading (DR)

Self-Contained (SC) four battery housing

What's in the box?

The inventory depends on the system configuration and options ordered.

Direct-Reading with deck box



Direct-Reading Pinnacle

Underwater cable (Serial or Ethernet)

Deck Box (includes power cord, 2-meter RS-232 serial cable, 2-meter Ethernet cable)

Handles (2) attach to the eye-bolts for lifting the Pinnacle

Self-Contained with deck box

Self-Contained Pinnacle with four battery housing

Ethernet underwater cable

Deck Box (includes power cord, 2-meter RS-232 serial cable, 2-meter Ethernet cable)

Accessories (included with all systems)

Spare Parts kit – See Chapter 4 in the Pinnacle Operation manual for a list of included parts

Eye-bolts (4) for lifting the Pinnacle

The documentation kit includes the Getting Started with the Pinnacle and an instruction sheet on how to download the Pinnacle manuals and software.

TELEDYNE MARINE Everywhereyoulook™

Use and Disclosure of Data Information contained herein is classified as EAR99 under the U.S. Export Administration Regulations. Export, reexport or diversion contrary to U.S. law is prohibited.

95B-6144-00
(July 2023)

How do I install the software?

1. Follow the instructions on downloading TRDI software and manuals.
2. Software is available on https://tm-portal.force.com/TMsoftwareportal. Install *Pinnacle Utilities*, *TRDI Toolz*, and *VmDas* (for Direct-Reading configurations) by first unzipping the file and then double-clicking on the exe file.
3. Use our online customer portal at https://www.teledynemarine.com/support/RDI/technical-manuals to download manuals or other Teledyne RDI documentation. Download the Pinnacle Deployment Guides and Operation manual.

Pinnacl SC Deployment Guide

Pinnacl DR Deployment Guide

Pinnacl Operation Manual

How do I remove the Pinnacle from the shipping case?

Test the system in the shipping box when it first arrives.

When unpacking, use care to prevent physical damage to the transducer face and connectors. The urethane face covers the transducer ceramics and provides a robust, flexible waterproof seal. Avoid setting the transducer on bumpy surfaces that may leave an indentation in the urethane or damage the urethane face.

Use lifting aids and proper lifting techniques when moving. Approximate weight in air:
Direct Read 105 ±2 LBS [47.6 ±.9 KG]
4X Battery Self-Contained 195 ±2 LBS [88.5 ±.9 KG]

The DR system includes two handles in the accessories kit. Attach the handles to the included eye-bolts for lifting the system. The eyebolts can be equally spaced around the transducer or use two adjacent holes to make the handles longer.

SC systems should be lifted using a hoist and the included eye-bolts.

How do I connect the underwater cable or dummy plug?

To connect the Cable / Dummy Plug:

1. Lubricate the connector by placing a light amount of silicone lubricant on the female cable connector mating surface (rubber portion only). Silicone lubricant is included in the Spare Parts kit. **Regular lubrication is required**.
2. Insert the connector into the receptacle, ensuring the key and pins are properly aligned.
3. Push straight in to fully seat the connector.
4. Thread the coupling ring hand-tight onto the receptacle to complete the connection.

Disconnecting the Cable / Dummy Plug

Loosen the coupling ring and disconnect the cable/dummy plug with a straight outward motion. Do not twist the connector.

EAR99 Technology Subject to Restrictions Contained on the Cover Page.

The dummy plug should be installed any time a cable is removed or not used. Use the dummy plug when the Pinnacle is in storage or is being handled.

The Ethernet and Serial Deck Box underwater cables have identical connectors on both ends. Plugging in the wrong cable will not harm the system but it will result in an inability to establish communication with the Pinnacle. To help avoid this possibility, the Ethernet and Serial cables have different color shrink-wrap to match the correct adapter:

Serial = Red

Ethernet = Blue

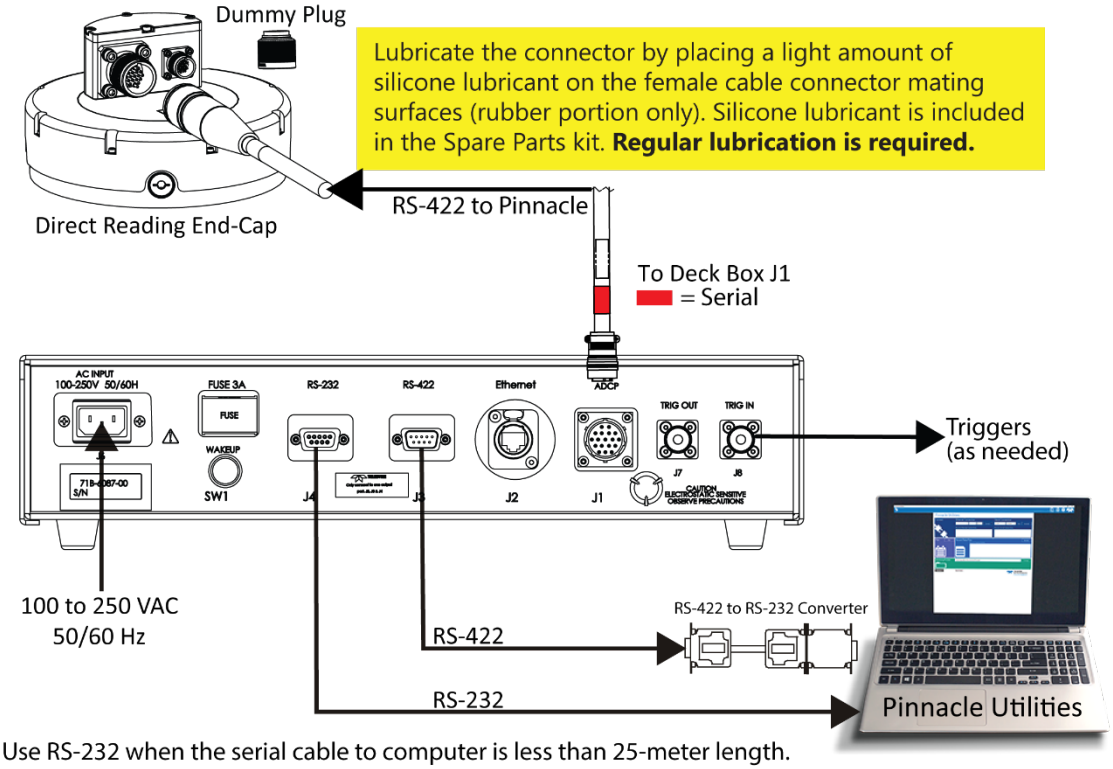
How do I connect the deck box?

The Deck Box converts AC power input into 36 VDC for the Pinnacle input power.

To set up the Pinnacle system with a deck box:

1. Connect the underwater cable to the Deck Box.
2. Attach the Deck Box to the computer's communication port. Choose one based on the underwater cable type (Serial or Ethernet):
3. Connect the Deck Box power cord to 100 to 250 VAC, 50/60 Hz.

Serial Communications



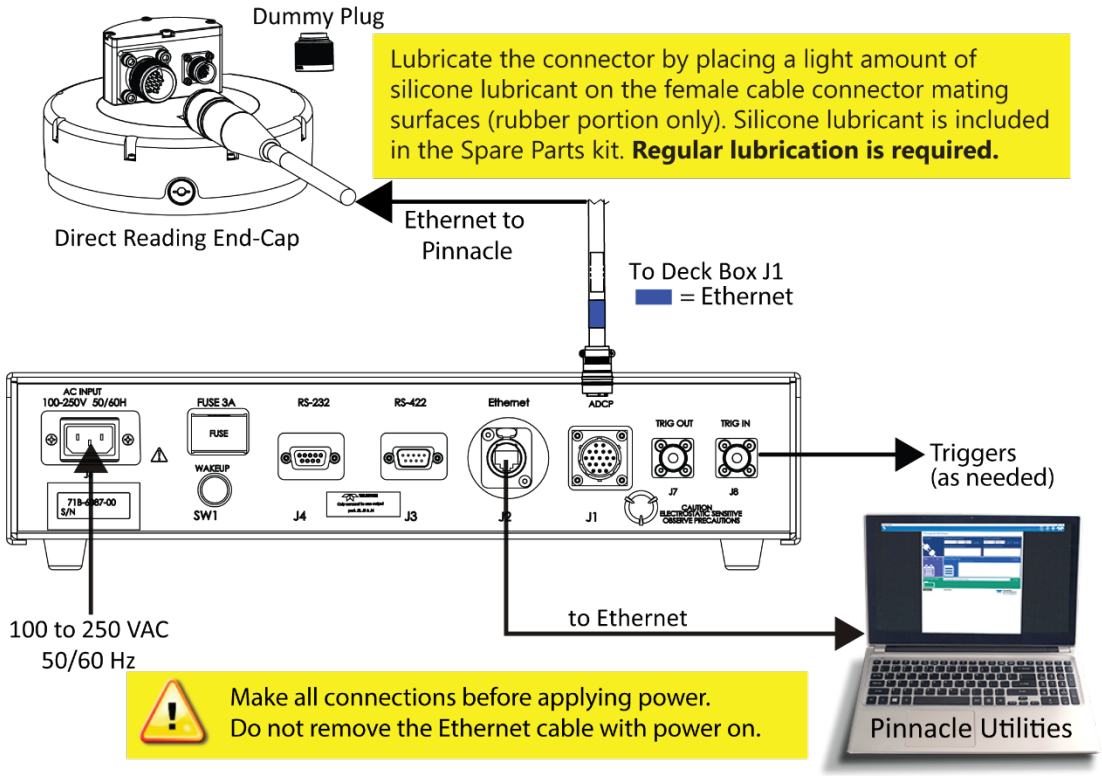
Use RS-232 when the serial cable to computer is less than 25-meter length.

Use RS-422 when the serial cable to computer is greater than 25-meter length. Use the RS-232-to-RS-422 converter if your computer only has a RS-232 COM port.

Make all connections before applying power.
Do not remove the Serial cable with power on.

EAR99 Technology Subject to Restrictions Contained on the Cover Page.

Ethernet Communications



EAR99 Technology Subject to Restrictions Contained on the Cover Page.

How do I connect to Pinnacle Utilities?

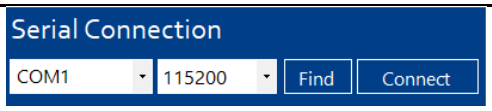
To establish communications with the Pinnacle:

1. Start the *Pinnacle Utilities* software.
2. Connect the Pinnacle deck box and apply power. Wait five seconds.
3. On power up, the system runs a self-test and the LEDs will blink (see the deployment guides for a description of the LEDs).
4. Select **New Serial Connection** or **New Ethernet Connection** depending on the underwater cable type.
5. Enter the Pinnacle's communication settings.

Serial Communications:

Select the **COM Port** from the drop-down list.

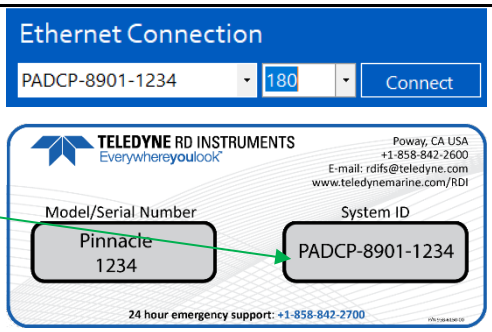
Enter 115200 for the **Baud Rate** from the drop-down list.



Ethernet TCP Communications when the PC is connected to a network:

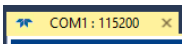
Enter the **System ID** PADCP-xxyy-nnnn as shown on the product label on the Pinnacle.

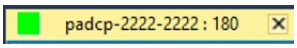
Enter the **Port Number** 180



If the PC is NOT connected to a network, see Direct to Laptop Connection.

6. Click the **Connect** button. Once connected, the main screen opens, and the session tab will show.



(Serial) or


(Ethernet)

Always close the TRDI software connection to the system by clicking on the X (×) in the session tab and then power down the Pinnacle before disconnecting the Ethernet cable. If the Ethernet link drops while an active connection exists with TRDI Software, then you may need to cycle power to the Pinnacle to reconnect.

If the Pinnacle is NOT deployed it will go to sleep in five minutes if there is no activity. This is true regardless of Direct-Reading, Self-Contained, Serial COM, or Ethernet communications. The only exception is when Ethernet is connected, and a link is detected. In this case the system will NOT go to sleep.

For more information on *Pinnacle Utilities*, click the Help icon (Help) to open the Pinnacle Utilities Software help file.

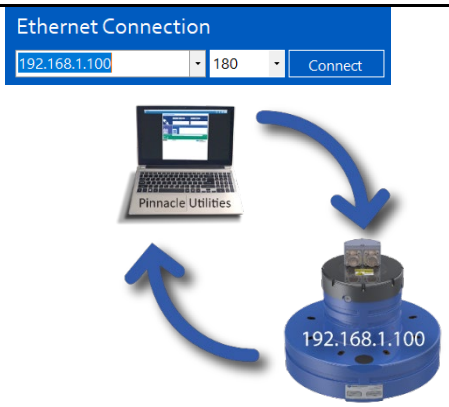
Read the deployment guides next for information on how to test and deploy the Pinnacle.

EAR99 Technology Subject to Restrictions Contained on the Cover Page.

Direct to Laptop Connection

Ethernet Peer-to-Peer – Pinnacle direct to laptop

With no access to a Domain Name System (DNS) server, the PC must be set up to use a Peer-to-Peer network connection.



Create a Peer-to-Peer Network Configuration on the computer

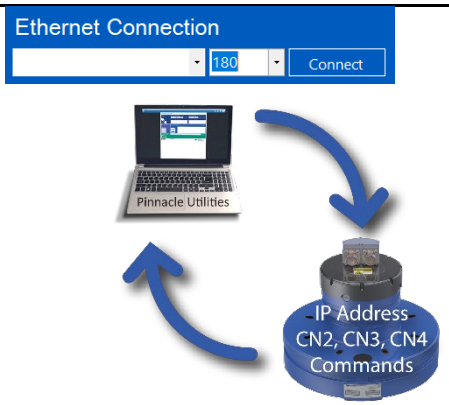
Enter the Static **IP address** 192.168.1.100

Enter the **Port Number** 180

Ethernet Peer-To-Peer when using a subnet specific to the vehicle

First set up communication either via LAN/DHCP or Peer-to-Peer to communicate with the system.

Change the Pinnacle's static IP address using the CN2, CN3, and CN4 commands as needed. Then connect to the system and do all comms through that channel going forward.



Enter the Static **IP address** xxx.xxx.x.xxx as configured

Enter the **Port Number** 180

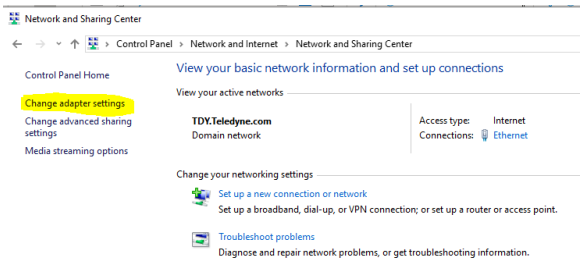
See Configure the Pinnacle for a Specific Subnet in the Pinnacle Utilities help file.

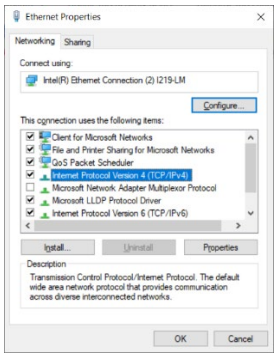
Creating a Peer-to-Peer Network

You must have Administrator privileges on the PC.

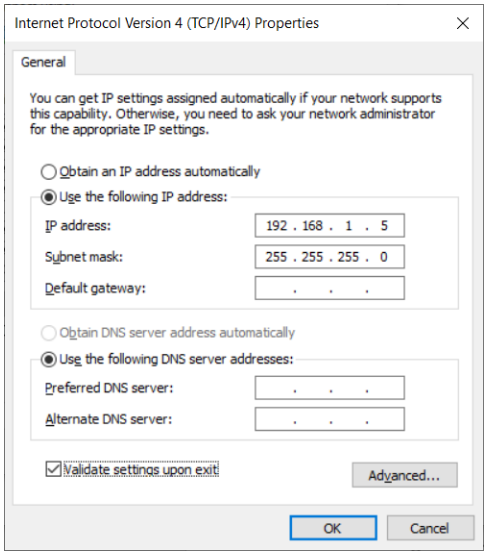
To create a Peer-to-Peer Network:

1. Connect the ethernet cable directly to the PC input (this assumes that the PC is *not* connected to a local LAN).
2. Go to the PC's Control Panel Network and Sharing Center.
3. Click on **Change adapter settings** in the left-hand column.
4. Select the ethernet port.
5. Right-click on this connection and select **Properties**. Enter your admin credentials when prompted.
6. Highlight **Internet Protocol Version 4 (TCP/IPv4)** and select **Properties**.





7. Select **Use the Following IP address** and enter the address and gateway as shown. Note that the last number here (5) can be any of several numbers – but not 100. What you are doing here is giving the PC an address on this subnet, while reserving the address 100 for the Pinnacle ADCP.
8. Click **OK** and then **Close**. After some time, the original screen showing no internet connections will change to show an "Unidentified network". Note that the red X on the port is gone.
9. The peer-to-peer ethernet connection is complete. Connect to the Pinnacle using the ADCP's static IP address 192.168.1.100.

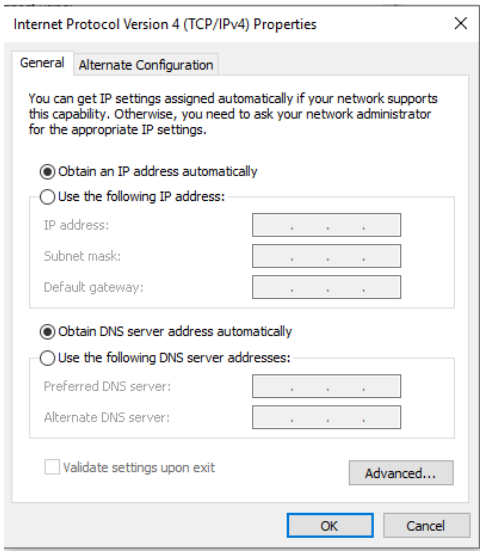


Returning the PC Back to a LAN Connection

Once the PC is configured for Peer-to-Peer communication, it will not be able to connect back to a LAN automatically. Before reconnecting to a DNS served LAN, you need to undo the Peer-to-Peer connection.

To go back to a LAN connection for the PC:

1. Return to the Network and Sharing center and repeat all the above steps (you will again need admin privileges) until you reach the Internet Protocol Version 4 (TCP/IPv4) properties window:
2. This time select **Obtain an IP address automatically**.



3. Click **OK** and **Close**. When you connect the PC to a LAN, it will be rediscovered by the DNS and reconnected.

How to Contact Teledyne RD Instruments

If you have technical issues or questions involving a specific application or deployment with your instrument, contact our Field Service group:

Teledyne RD Instruments	Teledyne RD Instruments Europe
14020 Stowe Drive Poway, California 92064	2A Les Nertieres 5 Avenue Hector Pintus 06610 La Gaude, France
Phone +1 (858) 842-2600	Phone +33(0) 492-110-930
Sales – rdisales@teledyne.com	Sales – rdie@teledyne.com
Field Service – rdifs@teledyne.com	Field Service – rdiefs@teledyne.com

Client Services Administration – rdicsadmin@teledyne.com

Web: https://www.teledynemarine.com

For all your customer service needs including our emergency 24/7 technical support, call +1 (858) 842-2700

Self-Service Customer Portal

Use our online customer portal at https://www.teledynemarine.com/support/RDI/technical-manuals to download manuals or other Teledyne RDI documentation.

Teledyne Marine Software Portal

Teledyne RD Instruments Firmware, software, and Field Service Bulletins can be accessed only via our Teledyne Marine software portal.

To register, please go to https://tm-portal.force.com/TMsoftwareportal to set up your customer support account. After your account is approved, you will receive an e-mail with a link to set up your log in credentials to access the portal (this can take up to 24 hours).

Once you have secured an account, use the Teledyne Marine software portal to access this data with your unique username and password.

If you have an urgent need, please call our Technical Support hotline at +1-858-842-2700.