



Scanning Sonar Software Setup Guide.

Boxfish ROV



BOXFISH[®]
RESEARCH



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1 Introduction

This guide describes how to set up the Echologger RS900 Control Program sonar viewing software for the sonar accessory device (Echologger MRS900L) mounted on your Boxfish ROV.

We will guide you through the steps needed to get the sonar software up and running with your Boxfish ROV and own computer.

1.1 Specifications

The Echologger MRS900L accessory is depth-rated to 1000m.

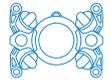
1.2 Components required

You'll need the following components:

- Boxfish ROV (with mechanical sonar accessory installed) connected to the Control Station via the tether reel
- Laptop/computer running Windows 10, connected to the Control Station via ethernet cable
- Serial port virtualisation software (one of the two options below)
- Echologger RS900 Control Program executable file (we will provide).

1.3 Overview of setup process

1. Before taking ROV into the field:
 - a. Run the Echologger RS900 Control Program executable file to install it on your computer.
 - b. Download serial port virtualisation software to your computer and create a virtual serial port.
 - c. Test that you can open the sonar software and that it can connect to the virtual serial port.
2. In the field:
 - a. Connect your computer to the Control Station with an ethernet cable.
 - b. Configure ethernet properties on your computer.
 - c. Open the Echologger RS900 Control Program software and connect to the computer's virtual serial port to start receiving sonar data.



2 Download Echologger RS900 Control Program

Run the **RS900ControlProgram.exe** file (we will provide this to you) to install the sonar software onto your computer.

3 Install serial port virtualisation software

You will need this software because the Echologger RS900 Control Program expects a serial port connection instead of an ethernet connection. We will solve this problem by installing software that creates a virtual serial port and bridges it to the ROV network.

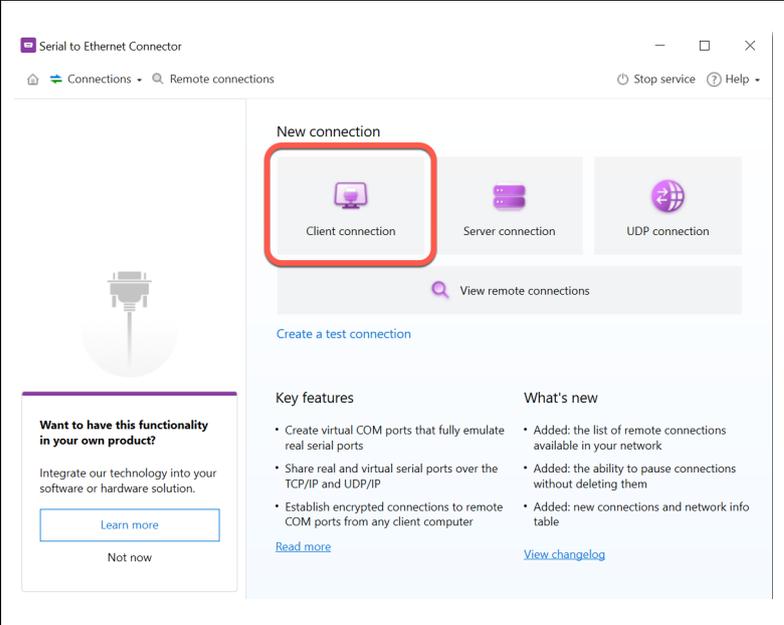
We have documented how to create a virtual serial port using two software options below. You will only need to use one of them.

3.1 Option 1: Serial over Ethernet

This is paid software; however you can download a free 14-day trial version at <https://www.serial-over-ethernet.com/downloads/>.

After you install and open the software, follow the instructions below.

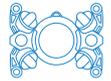
3. Click 'Client connection' under the 'New connection' heading.



The screenshot shows the 'Serial to Ethernet Connector' application window. The title bar includes 'Serial to Ethernet Connector' and standard window controls. Below the title bar, there are navigation options: 'Connections' and 'Remote connections'. The main content area is titled 'New connection' and features three buttons: 'Client connection', 'Server connection', and 'UDP connection'. The 'Client connection' button is highlighted with a red rectangular box. Below these buttons is a search icon and the text 'View remote connections'. At the bottom of the window, there are sections for 'Key features' and 'What's new', each with a 'Read more' link. The 'Key features' section lists: 'Create virtual COM ports that fully emulate real serial ports', 'Share real and virtual serial ports over the TCP/IP and UDP/IP', and 'Establish encrypted connections to remote COM ports from any client computer'. The 'What's new' section lists: 'Added: the list of remote connections available in your network', 'Added: the ability to pause connections without deleting them', and 'Added: new connections and network info table'.

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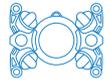


<p>4. On the 'Create new Client connection' screen, select an unused serial port.</p>					
<p>5. On the same screen, under 'Remote servers' enter 192.168.183.210 under Hostname, and 10001 under Port. Leave the other settings as their defaults. Then click the 'Create' button at the top.</p>	<table border="1" data-bbox="683 949 1345 1070"> <thead> <tr> <th>Hostname</th> <th>Port</th> </tr> </thead> <tbody> <tr> <td>192.168.183.210</td> <td>10001</td> </tr> </tbody> </table>	Hostname	Port	192.168.183.210	10001
Hostname	Port				
192.168.183.210	10001				
<p>6. Make sure the service has started – you should see this screen with 'Stop service' on the top right, indicating the service has started.</p>					

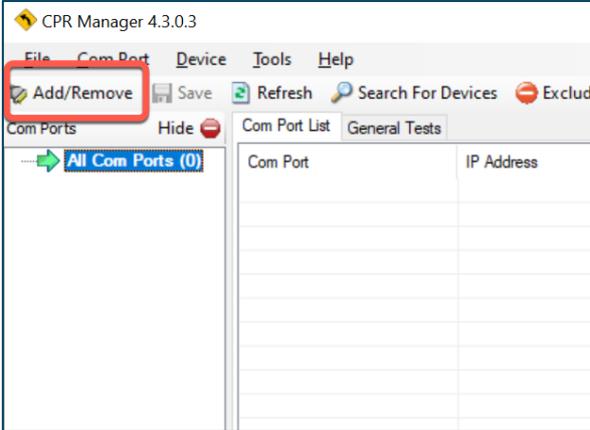
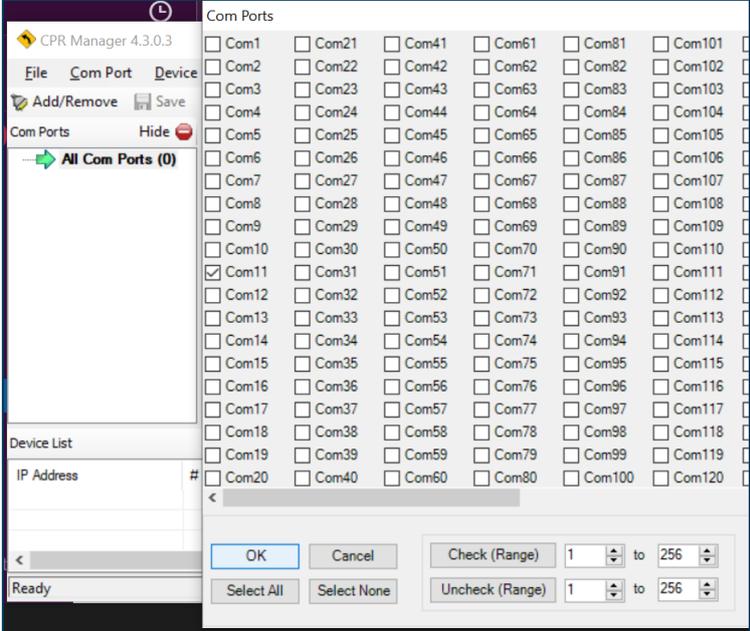
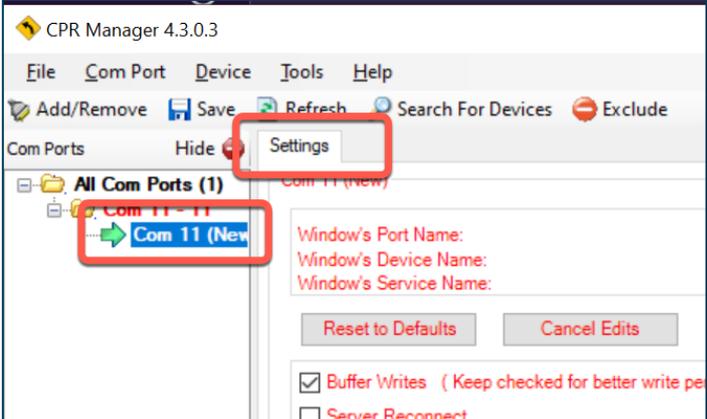
3.2 Option 2: Lantronix CPR (Com Port Redirector)

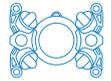
This is a free solution you can download from

<https://www.lantronix.com/products/com-port-redirector/>.



Open the software and follow the instructions below.

<p>1. Click the Add/Remove button on the top left.</p>	
<p>2. Choose an unused single COM port (it shouldn't matter which one) and click OK.</p>	
<p>3. In the left window, click to highlight the COM port you just selected, and click the Settings tab.</p>	



<p>4. In the Settings tab, scroll down. In the Service 1 row, enter the IP address 192.168.183.210 under Host and 10001 under TCP Port. Leave the other settings as their defaults.</p>	<table border="1"> <thead> <tr> <th>Service</th> <th>Host</th> <th>TCP Port</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>192.168.183.210</td> <td>10001</td> </tr> <tr> <td>2</td> <td></td> <td></td> </tr> <tr> <td>3</td> <td></td> <td></td> </tr> <tr> <td>4</td> <td></td> <td></td> </tr> <tr> <td>5</td> <td></td> <td></td> </tr> <tr> <td>6</td> <td></td> <td></td> </tr> <tr> <td>7</td> <td></td> <td></td> </tr> <tr> <td>8</td> <td></td> <td></td> </tr> </tbody> </table>	Service	Host	TCP Port	1	192.168.183.210	10001	2			3			4			5			6			7			8		
Service	Host	TCP Port																										
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<p>5. Click Save in the toolbar at the top.</p>																												

3.2.1 Test connectivity to the IP address

Note: To test connectivity you will need to connect to the Control Station using step 4 below, and the ROV should be powered on.

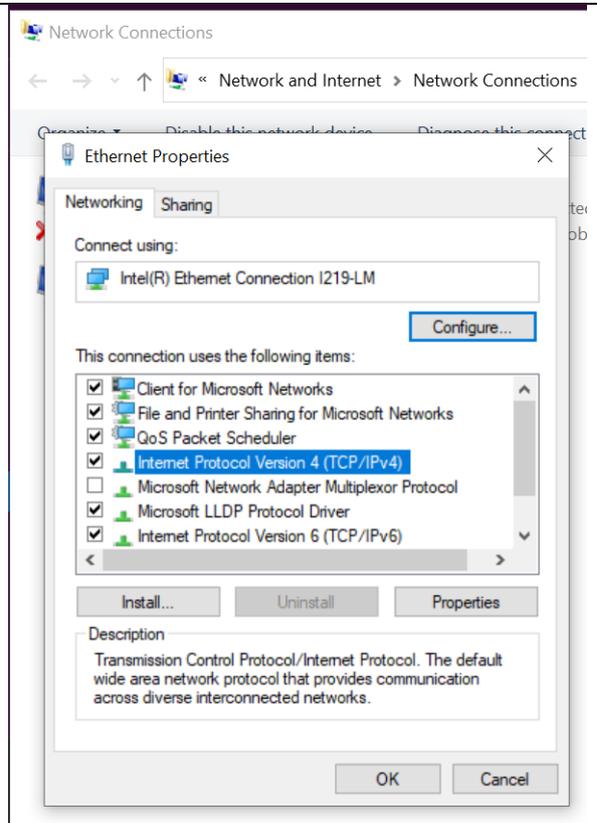
<p>Select your port number from the left window, and go to the Com x Tests tab (where x is your COM port number). Click the Open button and make sure the Com Status changes to Open, and Network Status changes to Connected. When complete, click the Closed button.</p>	
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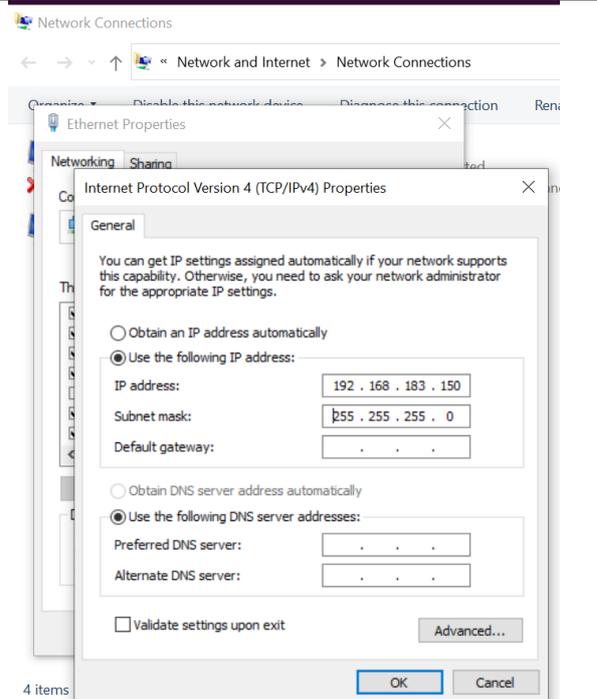
4 Connect computer to Control Station

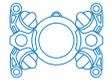
1. Connect an ethernet cable between the Control Station and computer.
2. On your computer, configure your ethernet port to have a static IP address:

3. Go to: Settings > Network & Internet > Ethernet > Change adapter options.
4. In the Network Connections window, double-click on your Ethernet connection (typically there will be only one option).
5. In the Ethernet Properties window, highlight Internet Protocol Version 4 (TCP/IPv4) and click 'Properties'.



6. In the Internet Protocol Version 4 (TCP/IPv4) Properties window, enter the IP address 192.168.183.150 and Subnet mask as 255.255.255.0, as shown below. Leave the other fields blank. Click OK.
7. Note: if you want to use this ethernet port for connecting to other devices later, you will need to select the 'Obtain an IP address automatically' radio button to return to default behaviour.

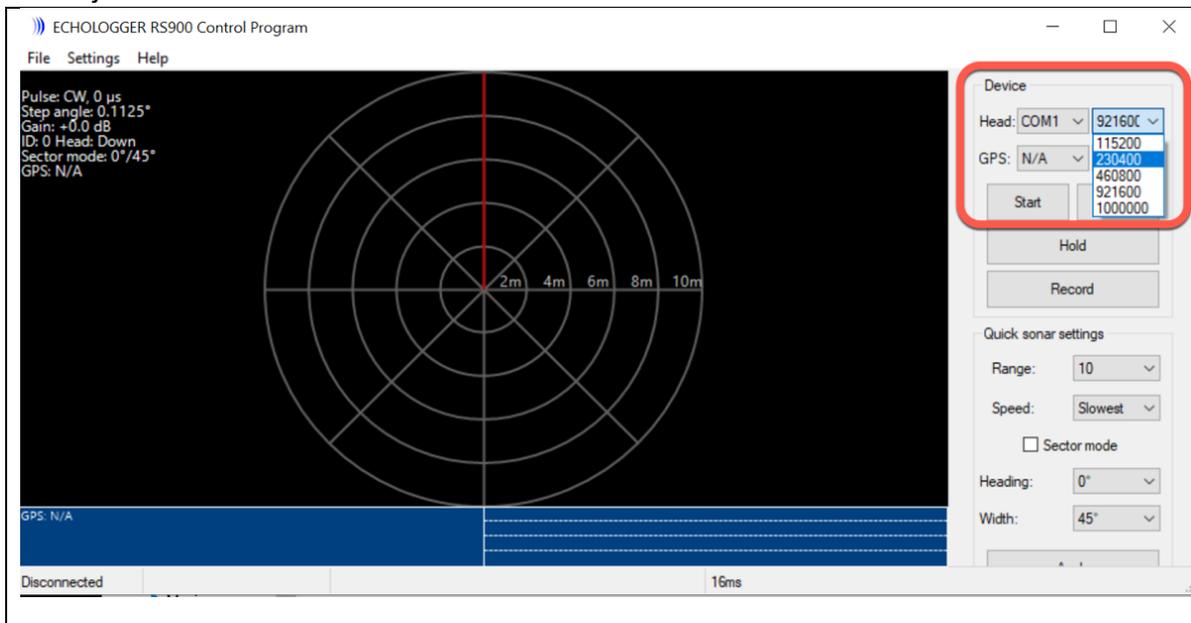




5 Set up Echologger RS900 Control Program

Note: The ROV and Control Station should be powered on, and the Sensor Power switch on your Control Station should be set to the ON position for the following steps.

1. Open the RS900 Control Program software installed on your computer.
2. On the right under 'Device', 'Head:' should be set to the virtual serial port that you previously set up.
3. Set the Baud rate to 230400. If everything else has been set up correctly and the ROV is running with sensor power on, pressing 'Start' should begin to show the sonar scanning on the screen. Other settings can be adjusted as desired.



4. Other settings can be adjusted as desired. Refer to the Echologger MRS900 User Manual (available Echologger) for details.