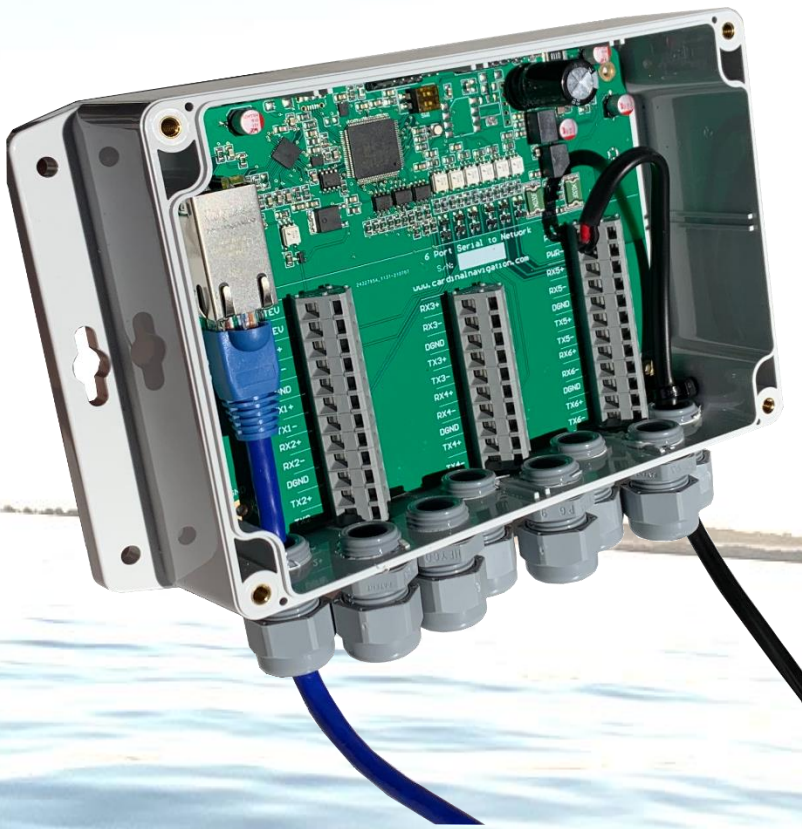


# Cardinal Navigation

## Serial to Ethernet Unit



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## Quick Start Information

### Connection

The Ser2net work device is set at <https://ser2eth>

Please ensure that you log in to the device using https

### DHCP Connect

To find the IP Address of the unit. Open the Command Prompt window. Then Type: ping ser2eth The response should be the IP Address of the unit.

### Direct Connect

If the unit is connected without a DHCP Server. The unit should default to 192.168.100.10

Ensure the Computer Is set to manual IP with an IP address in the range of 192.168.100.11 to 192.168.100.240

## Network configuration

The login password for the Network configuration page is

- login: admin
- password: cardinal

## DIPSwitch Configuration

There is a single dipswitch configuration on the Board. In default mode, these should be set to ON. To Reset the configuration of the device. Set DIPSwitch 1 to off (Slide to right hand Side). The LED should then flash Yellow.

## LED Indication

- Blue Startup.
- Red Waiting for Network Flashing
- Green Flashing. Connected to Network with IP Address.
- Yellow Flashing. In Reset Mode.

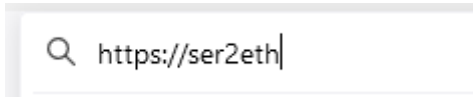
## Power

- The Unit will operation from 8VDC – 50V DC.
- Power input is recommended for 12 Volts DC.
- Current Draw @12 Volts is 130mA.

## Connecting to Webpage

If the unit is connected to a DHCP enabled server or network router, connection to the Serial to Ethernet page has to be done using https and

Entering



Will get you to the index page for the serial to Ethernet unit.

In some cases, you may experience a Certificate Error,



### Warning: Potential Security Risk Ahead

Firefox detected a potential security threat and did not continue to 10.0.0.77. If you visit this site, attackers could try to steal information like your passwords, emails, or credit card details.

#### What can you do about it?

The issue is most likely with the website, and there is nothing you can do to resolve it.

If you are on a corporate network or using anti-virus software, you can reach out to the support teams for assistance. You can also notify the website's administrator about the problem.

[Learn more...](#)

[Go Back \(Recommended\)](#)

[Advanced...](#)

In this case. Click Advanced, and accept the Risk and continue.

**Accept the Risk and Continue**

If you do not have a DHCP server, then you will have to connect using Direct Connection on the next page.

# Connecting Direct to Computer or Network with no DHCP

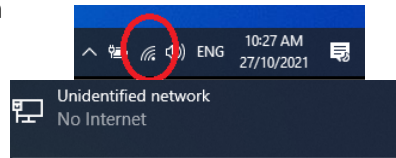
The Serial to Ethernet can be connected directly to your Computer.

To connect to the webpage the computers IP address will need to be changed so that the Computer is on the same Subnet as the Serial to Ethernet unit.

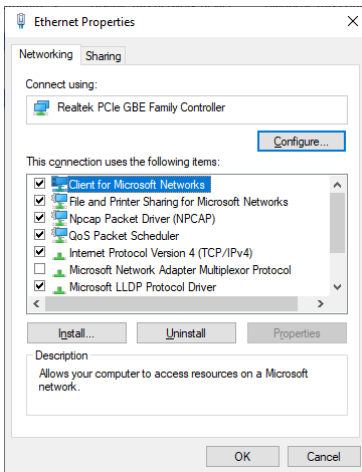
Clicking on the unidentified network shown near the clock. Circled to the right in Red.

Then Click on the Unidentified network.

On The right hand side of the page,



Change adaptor Options



Right click on the Ethernet Adaptor and select properties.

Select the Internet Protocol Version 4. Click on properties.

Set the IP address to the following Similar. As shown.

Obtain an IP address automatically

Use the following IP address:

IP address:	192 . 168 . 100 . 12
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	192 . 168 . 100 . 1

You should then be able to connect in the web browser to the Serial to Ethernet unit by entering

<https://192.168.10.10>

# Serial Port

## Overview

Port	Name	BaudRate	Rx Control	Tx Control	Rx Rate	Tx Rate	Tx Overrun
1	Rx1Port	4800	NORMAL	NORMAL	0	0	0
2	Rx2Port	4800	NORMAL	NORMAL	0	0	0
3	Rx3Port	4800	NORMAL	NORMAL	0	0	0
4	Rx4Port	4800	NORMAL	NORMAL	0	0	0
5	Rx5Port	4800	NORMAL	NORMAL	0	0	0
6	Rx6Port	38400	NORMAL	NORMAL	0	0	0

This page shows current connection information and performance of the serial port.

Baud rates for each port are selectable as. 4800, 9600, 19200, 38400, 57600, 115200.

Another feature of the Serial to Ethernet controller is to be able to invert the polarity of receive and transmit. This is useful if the wires have been reversed to the connected device.

The Rate data indicates the number of characters being received and transmitted. If The TX Overrun is greater than 0, then you will experience errors out of this serial port.

Selecting the Serial port to Configure by clicking on the Port Side tab, or the required port to configure.

## Hardware

The serial port hardware for Ports 5 and 6 is powered by an isolated Supply. This allows connection to hardware where isolation is required. Connection of the hardware where isolated ground is required such as VHF Radio GPS Input or PC Direct serial port connect it is recommended to use the Port 5 or Port 6 DGND (Isolated Ground) as the negative, and the TX5+ or TX6+ as the positive going data source.

## Serial Port Serial Destinations

Serial Port	Serial Destination
Serial 1	Tx2
Serial 2	Tx6
Serial 3	Tx4
Serial 4	Tx2
Serial 5	Tx4 Tx5 Tx6
Serial 6	Tx4 Tx6

Each Serial port can be configured to output received data to any serial port required.

To modify the Serial port, Click on the Serial port of interest.

A feature on the Serial port destinations is configuring parsing of Data from each serial port. To do this, click on the Destination Port.

## Port Parser Setup

Each serial to serial port can be configured to accept only required NMEA sentences.

In the below example.

- HDT is output at 50 ms Interval.
- GGA is output at 1 Second interval.
- VDO. All sentences are output.

Serial Rx1 to Tx2	Delete	Rate
\$**HDT	<input type="checkbox"/>	50ms ▾
\$**GGA	<input type="checkbox"/>	1S ▾
!**VDO	<input type="checkbox"/>	All ▾
Sentence to add: <input type="text"/>		<input type="button" value="Update"/>

## UDP Port Setup

The serial to Ethernet unit allows for 10 UDP inputs and 10 UDP Outputs.

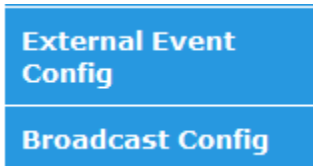
Multiple Serial sources can be selected. And Serial sources can be sent to more than 1 UDP port.

Port #	Rx Port	Tx Port	Serial Source	Serial Destination	Delete
UDP1	7891	2001	Rx1	Tx1	<input type="checkbox"/>
UDP2	7892	2002	Rx2	Tx2	<input type="checkbox"/>
UDP3	7893	2003	Rx3	Tx3	<input type="checkbox"/>
UDP4	7894	2004	Rx4	Tx4	<input type="checkbox"/>
UDP5	7895	2005	Rx5	Tx5	<input type="checkbox"/>
UDP6	7896	2006	Rx6	Tx6	<input type="checkbox"/>
UDP7	0	0			<input type="checkbox"/>
UDP8	0	0			<input type="checkbox"/>
UDP9	0	0			<input type="checkbox"/>
UDP10	0	0			<input type="checkbox"/>

If you do not wish to use a port, the port can be deleted. To add a port, Select a Port this is currently set to 0.

The serial to Ethernet unit is configured with Standard Configurations.

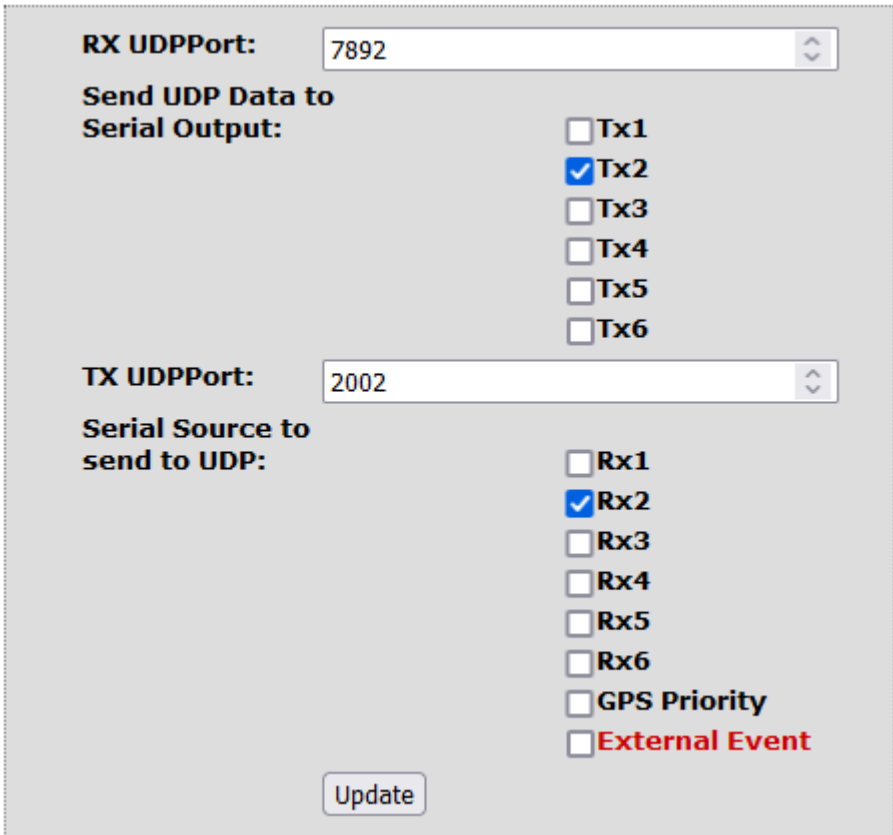
### Extra configuration



External Event configuration and the UDP broadcast configuration can be set.

## UDP Configuration

Port configuration is configured in the Port configuration page.



The image shows a configuration panel for UDP. It contains two main sections: RX and TX. The RX section has a dropdown menu for 'RX UDPPort' set to 7892, and a group of checkboxes for 'Send UDP Data to Serial Output' with 'Tx2' selected. The TX section has a dropdown menu for 'TX UDPPort' set to 2002, and a group of checkboxes for 'Serial Source to send to UDP' with 'Rx2' selected. There are also checkboxes for 'GPS Priority' and 'External Event'. An 'Update' button is at the bottom.

Section	Field	Value
RX	RX UDPPort	7892
	Send UDP Data to Serial Output	
	Tx1	<input type="checkbox"/>
	Tx2	<input checked="" type="checkbox"/>
	Tx3	<input type="checkbox"/>
	Tx4	<input type="checkbox"/>
	Tx5	<input type="checkbox"/>
Tx6	<input type="checkbox"/>	
TX	TX UDPPort	2002
	Serial Source to send to UDP	
	Rx1	<input type="checkbox"/>
	Rx2	<input checked="" type="checkbox"/>
	Rx3	<input type="checkbox"/>
	Rx4	<input type="checkbox"/>
	Rx5	<input type="checkbox"/>
	Rx6	<input type="checkbox"/>
GPS Priority	<input type="checkbox"/>	
External Event	<input type="checkbox"/>	

Update

All serial ports can be configured to UDP. An error will occur however if all ports are selected due to software limitations.

## External Event Configuration

An external event input is provided for on PCB. This requires a contact closure, (such as a switch or Relay) The message will be sent out the configured UDP Port.

<b>External Event Sentence:</b>	<input type="text" value="\$IIEVE,,EXTEVENT1,EXTEVENT*4A"/>
	<input type="checkbox"/> Reset Sentence
	<input type="button" value="Update"/>

## Broadcast Configuration

In an Ethernet network. Multiple subnets can be configured. UDP data is can be Broadcast, or directed to a specific network. Modifying and enabling the broadcast mask will cause all UDP packets to be sent to specific networks.

<b>Broadcast Mask:</b>	<input type="text" value="255.255.255.255"/>
	<input type="checkbox"/> Enable
	<input type="button" value="Update"/>

# GPS Priority

## Configuration

The system is configured to be able to send Valid GPS Data to udp or serial.

The GPS message will be sent based on Priority and Validity.

Source	Priority
PORT1	
PORT2	<input type="button" value="UP"/>
PORT3	<input type="button" value="UP"/>
PORT4	<input type="button" value="UP"/>
PORT5	<input type="button" value="UP"/>
PORT6	<input type="button" value="UP"/>

Configuring UP will increase the priority. The system will default through the above priority if GPS data is found. If GPS Data returns, then this will automatically be used.

## GPS Priority to serial Port

The GPS priority to serial port is handled in this page. Ensure configuration of Serial output does not affect the sourcing of priority GPS.

le, If using GPS priority, ensure that Ports that contain GPS data are not configured in the Serial port configuration.

**GPS Priority to Serial Output:**

- Tx1
- Tx2
- Tx3
- Tx4
- Tx5
- Tx6

Set

Parse configuration is also available for GPS priority Data. Please see parse configuration under serial port.

Serial Port	Serial Destination Settings
GPS Priority Parse	Tx1 Tx2

## Terminal mode

Data input and output is seen in the terminal. Select the Port to View, and click update. Data is then shown on the terminal screen.

## Network Configuration

Network configuration can be used to change the settings of IP address. If using DHCP IP address is automatically assigned by the Router.

If there is No DHCP server, then a method of Auto IP is used and the IP defaults to 192.168.100.10.

<b>MAC Address:</b>	<input type="text" value="54:10:ec:1e:2b:58"/>
<b>Host Name:</b>	<input type="text" value="SER2ETH"/>
	<input checked="" type="checkbox"/> Enable DHCP
<b>IP Address:</b>	<input type="text" value="10.0.0.80"/>
<b>Gateway:</b>	<input type="text" value="10.0.0.1"/>
<b>Subnet Mask:</b>	<input type="text" value="255.255.255.0"/>
<b>Primary DNS:</b>	<input type="text" value="10.0.0.1"/>
<b>Secondary DNS:</b>	<input type="text" value="0.0.0.0"/>
	<input type="button" value="Restart Interface"/>

## Tracking

If the unit is connected to the outside world, a tracking packet can be sent to an assigned server. Please contact your distributor for further information.

<b>Server Address:</b>	<input type="text" value="www.trackit.com"/>
<b>Server Port:</b>	<input type="text" value="1171"/>
<b>Tracking ID:</b>	<input type="text" value="123456789"/>
<b>Interval:</b>	0 seconds
	<input type="checkbox"/> Enable Tracking
	<input type="checkbox"/> Send Temperature
	<input type="button" value="Update"/>

## Warranty

When you buy goods from Cardinal Navigation as a consumer, the goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund from the **retail supplier of the goods** for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced by the **retail supplier of the goods** if the goods fail to be of acceptable quality and the failure does not amount to a major failure. Certain other rights are available directly against manufacturers that cannot be excluded or limited.

Quality — goods supplied by Cardinal Navigation, must be of acceptable quality. Acceptable quality accepted below.

- Safe, durable and free from defects.
- Acceptable in appearance and finish.
- Fit for purpose of which goods of that kind are commonly supplied.

To initiate a support request. Please contact your supplier, or Cardinal Navigation Pty Ltd. [support@cardinalnavigation.com](mailto:support@cardinalnavigation.com)