NMEA3WIFI

Firmware Version: 1.0

192.168.4.1 and 192.168.1.30

NMEA3WIFI AP NETWORK

NMEA3WIFI SSID

12345678 PASSWORD

192.168.4.1 IP ADDRESS

EXTERNAL NETWORK

CASA SALA SSID

1234abcd PASSWORD

192.168.1.30 IP ADDRESS

SERIAL PORTS SETTINGS

480(>P1 0 P1>P3 P1>ST P1>UDP P1>TCP

384(>P2 0 P2>P3 P2>ST P2>UDP P2>TCP

384(P3> 0

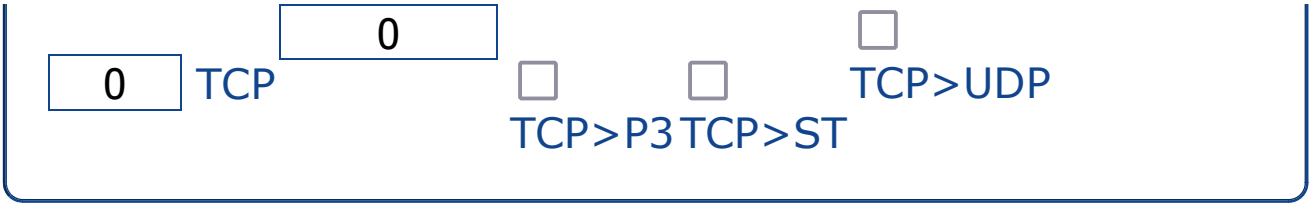
SEATALK1 PORT SETTINGS

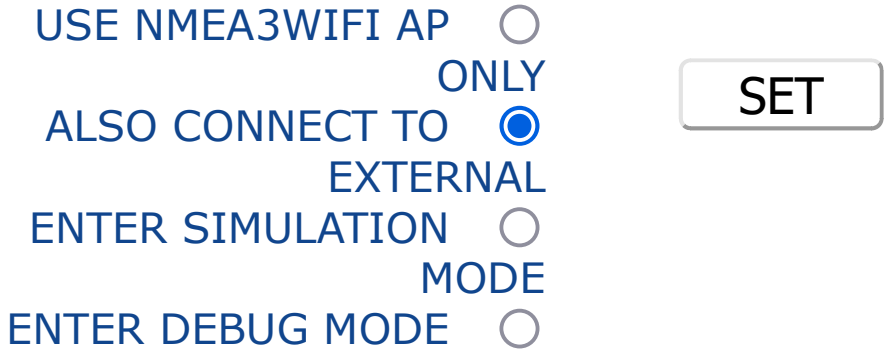
ST in >ST 0-A-S8E ST>P3 ST>UDP ST>TCP

ST out ST> 0 0: Default (no $S ST>NMEA MODE

WIFI PORTS SETTINGS

2000 UDP 0 UDP>P3 UDP>ST UDP>TCP





NMEA3WIFI AP NETWORK
You can operate the NMEA3WIFI multiplexer in two modes: AP or Client Station. In AP (Access Point) mode, NMEA3WIFI creates a wifi network and smartphones, tablets or computers connect to this wifi network to receive/send data from/to NMEA3WIFI. In Client Station mode, NMEA3WIFI joins an existing external wifi network and transmits/receives wifi data on that network. NMEA3WIFI always creates its own AP network, even when you set NMEA3WIFI to join an existing network. In this panel, you specify the name and the password of the wifi network that smartphones, tablets and computers should use to join this network. When working as an Access Point, NMEA3WIFI uses IP address 192.168.4.1 and supports DHCP. A maximum of 5 clients can join the network and are assigned consecutive IP addresses (eg 192.168.4.2 ...). Security is WPA2-PSK. Ssid and Password can have a maximum of 15 characters and a minimum of 4 and 8 characters, respectively. When you need to change any setting of NMEA3WIFI you should connect to this network and then write 192.168.4.1 in the navigation bar of a browserto get the page that you are reading now.

EXTERNAL NETWORK
If you have already a working wifi network and want NMEA3WIFI to join that network as a Client Station, you should enter here the authentication parameters that NEMA2WIFI should use to join this existing network. Ssid and Password can have a maximum and a minimum size of characters as before. The IP address of the multiplexer on this external network can be assigned by DHCP or it can be a static one. In order for the multiplexer to obtain an automatic IP from the network/ router you enter 0 in the IP Address text box (this is the default). In order to force a static IP you need to specify it, exactly, on the IP Address text box. Make sure that you enter an unused IP belonging to the DHCP pool of the existing network or router. When the connection to an existing network succeds, the IP address will be shown in the header of this page just below the firmware version number.

SERIAL PORTS SETTINGS
NMEA3WIFI has 2 input serial ports named as P1 and P2 and one serial output port, named as P3. The baud rate of serial ports P1 and P2 is adjustable between 4800, 9600, 19200 or 38400. The baud rate of port P3 can be 4800, 9600, 19200, 38400, 57600 or 115200. It is important to note that if the baud rate of the output port is inferior to those of the input ports, data may be lost. Also, all data output by P3 is also output by the USB port of the processor module of the multiplexer. Port P1 has a special mode of operation. If you set USB on the baud rate of port P1, data from that port is not input from the PCB connector but, instead, it is read from the USB port of the processor module. In that case data is read at the baud rate specified on P3. The wide text boxes for each serial port refer to NMEA0183 sentence filtering. If you do not need sentence filtering, you enter 0 (zero) in these boxes. See below for an explanation about sentence filtering. Data received on the input ports P1 and P2 can be transmitted by output port P3 or by wifi either using the UDP port, the TCP port or both.

SEATALK1 PORT SETTINGS

The NMEA3WIFI multiplexer can receive and send SeaTalk datagrams. The received datagrams are converted to Nmea0183 sentences which can be filtered and routed to the serial port P3 or to wifi (UDP or TCP). Also Nmea0183 data from the serial input ports or from wifi can be transmitted on the SeaTalk bus. Only a small set of Nmea0183 sentences are capable of being translated to SeaTalk datagrams. Before the translation and transmission, the Nmea0183 sentences can be filtered. The conversion from SeaTalk datagrams to Nmea0183 sentences is controlled by a drop box labelled as ST > NMEA0183 MODE. You can choose between 4 options. Option 0 is the default option where only standard Nmea0183 sentences converted from SeaTalk datagrams are transmitted. The remaining options use an extra 'non standard' Nmea0183 sentence which starts with the string $STALK followed by the datagrams bytes comma separated. This allows raw SeaTalk data to be directly received by applications without the need to convert the datagrams to Nmea0183 sentences. If you choose option 1, and in addition to the sentences transmitted in option 0, SeaTalk datagrams related to autopilot operation generate a $STALK transliteration. In option 2, all SeaTalk datagrams generate a $STALK transliteration. In option 3, no conversion to Nmea0183 is performed. Instead, every datagram will generate its equivalent $STALK sentence.

WIFI PORTS SETTINGS

The NMEA3WIFI multiplexer can send and receive wifi data in a client/server configuration where the multiplexer is the server and the connecting devices are the clients. You can can use either the UDP, the TCP or both internet protocols to send and receive wifi data. You turn one protocol inactive by setting its port number equal to zero. Non zero port numbers, either UDP or TCP, should be in range from 1024 up to 65535. By default, NMEA3WIFI transmits using UDP broadcasting on port number 2000 (compatible with Navionics Sonar Chart Live). UDP broadcasting assures that all the clients connected to the wifi network listening to the specified UDP port number will receive the packets sent by the multiplexer. You should also set the same protocol (UDP or TCP) and the corresponding port numbers on the connection devices that receive/send data from/to the NMEA3WIFI multiplexer. When you use the TPC protocol, you need to specify the IP address of the multiplexer. This address, in the case of AP ONLY mode, is 192.168.4.1. If the multiplexer is connected to an external network you specify the IP address that is assigned by the external network. It is important to note that only one connection with the multiplexer can be active through the TCP protocol but, at the same time, you can have multiple UDP connections. The wide text boxes for each wifi ports refer to NMEA0183 sentence filtering. If you do not need sentence filtering, you enter 0 (zero) in these boxes. See below for an explanation about sentence filtering. Finally you can set what to do with the received wifi data. It can be be transmitted through the serial output port P3, the SeaTalk port or through the other internet port.

NMEA0183 SENTENCE FILTERING

The 2 input serial ports, the serial output port and the 2 input wifi ports can be set to pass or to block specified NMEA0183 sentences. The the input and output SeaTalk ports can also be set to pass or to block specified SeaTalk datagrams. This is governed by a filtering string of up to 43 characters that you can enter in the wide text boxes for each of the ports referred to. The first character is a number, between 0 and 9. When this number is 0 and nothing follows, no filtering takes place. When this number is 9, the port is ignored (neither read nor written by the multiplexer). When this number is between 1 and 8, the multiplexer tests the checksum of the sequence. If it finds a wrong checksum, the sentence is ignored. If the starting number is between 2 and 8, some sequences are periodically dropped independently of the rest of the filtering string. For example, if that number is 4, it means that only the 4th sentence is taken from 4 successive sequences. The first 3 sentences are dropped. The second character is a separator. The characters '-', '.', '~' and others could be used as separators, but we will use '-'. The third character can only be 'A' or 'R'. 'A' means that only the sentences that are referred to in the rest of the filtering string are ACCEPTED by (pass through) the ports. 'R' means that only the sentences that are referred to in the rest of the filtering string are REJECTED (blocked) by the ports. Each NMEA0183 sequence is specified by 3 characters inserted between separators. For example, the string '3-A-RMC-GGA-GLL-GRS-GSA' means 3 things. Firstly, a sentence only passes the filter if it has a correct checksum. Secondly, only 1 in 3 successive sentences is taken. And finally, the sentence only passes the filter if it is 1 of the 5 specified sentences. Datagrams are also specified by 3 characters. For example, datagram 53 (hexadecimal) is specified by S53. An important note is to understand that the filtering strings for the UDP and TCP ports refer to data input. No filtering takes place when data is transmitted by UDP or TCP.

SETTING OPERATING MODES

In addition to the above parameters, you have 4 radio buttons to choose between: (i) working in AP mode only (ii) also connect as a Client Station (iii) Simulation Mode (iv) Debug Mode. You press the SET button for NMEA3WIFI to accept the parameters in this page. If there are no errors in the parameters, NMEA3WIFI changes its operation to the mode and settings selected. You can use a Windows tool called 'Nmea0183Tester.exe' for advanced testing of the multiplexer. The tool can transmit or record NMEA 0183 data using WiFi or serial communication. Please check www.vela-navega.com/forum to obtain support for the multiplexer.

HARD RESET AND UPDATE

When you press the HARD RESET button the multiplexer loads its factory settings. When you press the UPDATE button you can check and load the latest available software for the multiplexer. The factory setting uses the following parameters: Mode: Access Point; Ssid: NMEA3WIFI; Password: 12345678; IP Address: 192.168.4.1; Wifi Protocol: UDP; UDP Port Number: 2000; Serial Port P1 Baud Rate: 4800; Serial Ports P2 and P3 Baud Rates: 38400; Serial Output P3: none; SeaTalk port ignored; UDP Output: P1 and P2.

HARD RESET

UPDATE