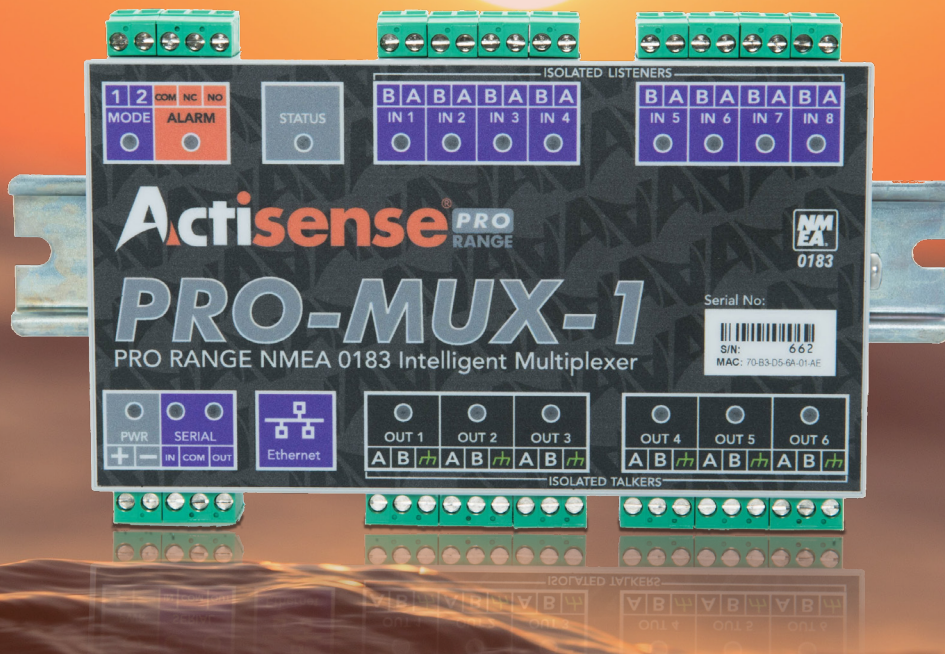# How To Configure the PRO-MUX-1 Multiplexer

Actisense®

Award Winning **NMEA** Specialists

Guide to configuring PRO-MUX-1

The Actisense PRO-MUX-1 is a very powerful multiplexer / router, capable of filtering, advanced filtering, directing sentences to specific connected listeners, and auto bauding. With this guide, the user will be able to better understand the power and capability of the PRO-MUX-1 within an NMEA 0183 network.

Connecting to the device

Full details on connecting to the web interface on the product are found within the PRO-MUX-1 User Manual, which is downloadable from our website. For the example used here, the device is connected to a DHCP network router via an Ethernet cable.

To connect to the device, enter 'http://promux-xxxxxx' into any web browser (xxxxxx is replaced by the serial number, e.g. promux-123456). Once the device has been connected to, the following web page will appear:
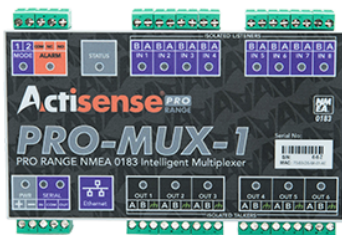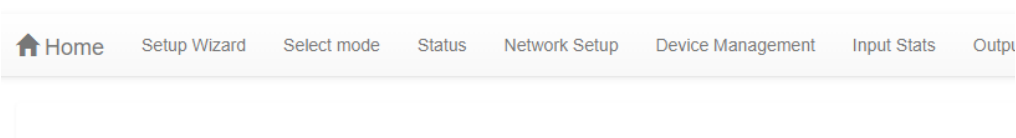
This is the 'home page' for the web interface, giving an overview of product info including firmware version, web file version, power, current operating mode selected etc...

From here, any of the different pages can be accessed using the ribbon at the top of the page.
Please note, that if this is the first time using the device, or the web cache has been cleared, then the username and password and required.   UN = Admin, PW = Admin.

Setup Wizard

Selecting the set-up wizard option will go to a page where all pre-existing user defined configurations can be modified, and a new configuration can be created for the device. The following page will appear when the setup wizard option is selected:

If the device is being used for the first time, there will be no options other than 'New User Mode' in this page as it will be a new configuration for the first time.

Once the New User Mode option is selected, the page presented will allow for a custom name and description to be given to the configuration, and a mode to base the new configuration from using another user defined mode:

Previous

User-Defined

- asd
  asd
- sdf
  sdfsd
- HHH
  HH
- HYRR
  RR
- BNVHH
  BVBVB
- zxccx
  xcx
- NewUser1
  sdsdsd
- NewUser2
  asasa
- NewUser4312
  hhh45
- NewUser5
  aas
- jdjdjdj
  lskls
- Robbies test mode 1
  test
- Doug test mode
  New mode
- Josh Test2
  autoswitch2
- New User Mode
  Detailed description of new user mode

Mode Name:

Mode Description:

Select mode to be based upon:

Combine 1 ▼

Once the mode has been named and a base configuration selected, the baud rate configuration page will be shown. Here the baud rate is individually configurable for each input port and output port, and a 'friendly name' can be given to each port. There are two routes that can be taken here for talker devices connected to the inputs:

1. The device is left on the autobaud configuration, meaning that the PRO-MUX-1 will adjust the baud rate on each input port dependant on the baud rate of the talker device connected to it. *(Autobaud is only available on Ports 1-4. 5-8 are fixed to 4800 baud).*
2. The device can be configured for each port manually, giving the user more control over the configuration if the autobaud feature is not preferred.

After configuring the Input ports, the Output ports can be configured. The Output ports can be set up to either follow the baud rate on the chosen Input or set to a manually selected value. It is important to highlight that only Output 1 can be set to 115200 baud, whilst the rest of the ports have a maximum baud rate of 38400.

Warning: Manually setting the output baud rate slower than the input baud rate may result in the loss of data due to limited bandwidth. Consult the Stats page to view the output loading. The Status LED on PRO-MUX-1 will also indicate overload status - consult user manual.

Once the device's Input and Output ports have been configured for desired baud rates and named, the mode will be set like the image below:

From this point onwards, the Friendly names entered in the previous page for the baud rate configuration will prove very useful in setting up the rest of the steps on the current user mode, because they carry through.

The next web page on the configuration is for defining alarms and how they operate.

Alarms

The alarm feature is a powerful feature of the PRO-MUX-1. It allows the user to identify various states and have a message sent by the PRO-MUX-1 to identify what Alarm has trigged. (Message must be enabled by ticking 'Action: Send Message' option for each alarm):

• Autoswitch: PRO-MUX-1 will Autoswitch (if enabled) between one or more inputs, and will output the following message if Autoswitch is performed:
$MXALR,hhmmss,004,PRO-MUX-1|206221|Autoswitch

• Data Overload: PRO-MUX-1 will determine if too much data is being sent at one time to a port, and will output the following message if enabled:
$MXALR,hhmmss,002,PRO-MUX-1|206221|Combine: Data overload

• Low Voltage: PRO-MUX-1 will notify if the voltage level is too low for the device, and will output the following message:
$MXALR,hhmmss,003,PRO-MUX-1|206221|Voltage Alert: PWR <Measured Voltage>

Basic Routing

Basic routing functions on the PRO-MUX are designed to give the user control over which Outputs receive sentences from the Inputs. The purpose of routing is to essentially dismiss messages that are not required for certain devices. This is better explained in the example below, where the following has been configured:

Basic Routing

Input Ports	SERIAL	OUT1 (PC)	OUT2 (NGW-1)	OUT3 (Radar)	OUT4 (Autopilot)
	Clear All · Set All	Clear All · Set All	Clear All · Set All	Clear All · Set All	Clear All · Set All
SERIAL	BLOCK ALL	PASS ALL	PASS ALL	PASS ALL	PASS ALL
IN1 (GPS 1)	BLOCK ALL	BLOCK ALL	PASS ALL	BLOCK ALL	BLOCK ALL
IN2 (GPS 2)	BLOCK ALL	PASS ALL	PASS ALL	PASS ALL	PASS ALL
IN3 (AIS)	BLOCK ALL	PASS ALL	PASS ALL	BLOCK ALL	BLOCK ALL
IN4 (USG-2)	BLOCK ALL	BLOCK ALL	PASS ALL	BLOCK ALL	PASS ALL

IN 1 sentences from GPS 1 are only going to OUT 2.
IN 2 sentences from GPS 2 are going to OUT1, OUT 2, OUT 3 and OUT 4.
IN 3 sentences from AIS are going to OUT 1 and OUT 2.
IN 4 sentences from USG-2 are going to OUT 2 and OUT 4.

Note that the friendly names are used here to provide easy identification of the device on each input. This is extremely useful for an installer who may be visiting the vessel for the first time, as it saves a large amount of time which would otherwise be spent tracing wires back to understand what device is connected to each I/O Port.

Advanced Routing

Basic routing here gives a good amount of control over the Inputs and Outputs, however sometimes it is required to go further into the connections and define what messages specifically from each Input device are sent to each Output. This is where advanced routing comes in.
For example, if the USG-2 on IN 4 is sending 7 messages, but only 3 of these are required for the NGW-1 then the advanced routing can be used to filter out unnecessary sentences.
Advanced routing is an extremely powerful tool which can be used to reduce the amount of 'traffic' from messages going to a certain Listener, which can be especially useful if the device connected to the output has a lower baud rate (lower bandwidth).
Once the NMEA 0183 talker (USG) is sending data to the PRO-MUX, the 'Capture Live Sentences' option in the Advanced Routing page can be used to automatically populate the table with every sentence currently available. These sentences must be ticked to 'Enable Rule', which will begin to further populate the table with 'Block' and 'Pass' options for each output.
From here, all sentences which are not required for the specified Outputs must be blocked, and the ones required for each listener set to 'pass'. See diagram below:

Input Channel	Rule (sentence)	Enable Rule	SERIAL	OUT1	OUT2 (NGW-1)
			Clear All Set All	Clear All Set All	Clear All Set All
IN2	GPGSV	☑	BLOCK	BLOCK	BLOCK
IN4 (USG-2)	AIVDO	☑	BLOCK	BLOCK	PASS
IN4 (USG-2)	GPDTM	☑	BLOCK	BLOCK	PASS
IN4 (USG-2)	GPGGA	☑	BLOCK	BLOCK	BLOCK
IN4 (USG-2)	GPGLL	☑	BLOCK	BLOCK	PASS
IN4 (USG-2)	GPGSA	☑	BLOCK	BLOCK	BLOCK
IN4 (USG-2)	GPGSV	☑	BLOCK	BLOCK	BLOCK
IN4 (USG-2)	GPRMB	☑	BLOCK	BLOCK	PASS

Autoswitch Configuration

Autoswitching is a function where the device determines if the data on the Input is present and will switch to another user determined Input if it is not.

By selecting the tick box for ASW 1 or/and ASW 2, it enables the Autoswitch function on the device, and by selecting the 'Config' button it will prompt a second dialogue box to appear where the priority of the devices can be defined.

As seen in this screenshot, the PRO-MUX has been configured on ASW1 to have IN1 as the primary, and to switch to IN2 as the secondary if IN1 fails. The priority is defined from left to right, where left is highest priority.

Config Autoswitch   ✕

Selected input channel list (priority is from left to right)

| IN1 ✕ | IN2 ✕ |

Close