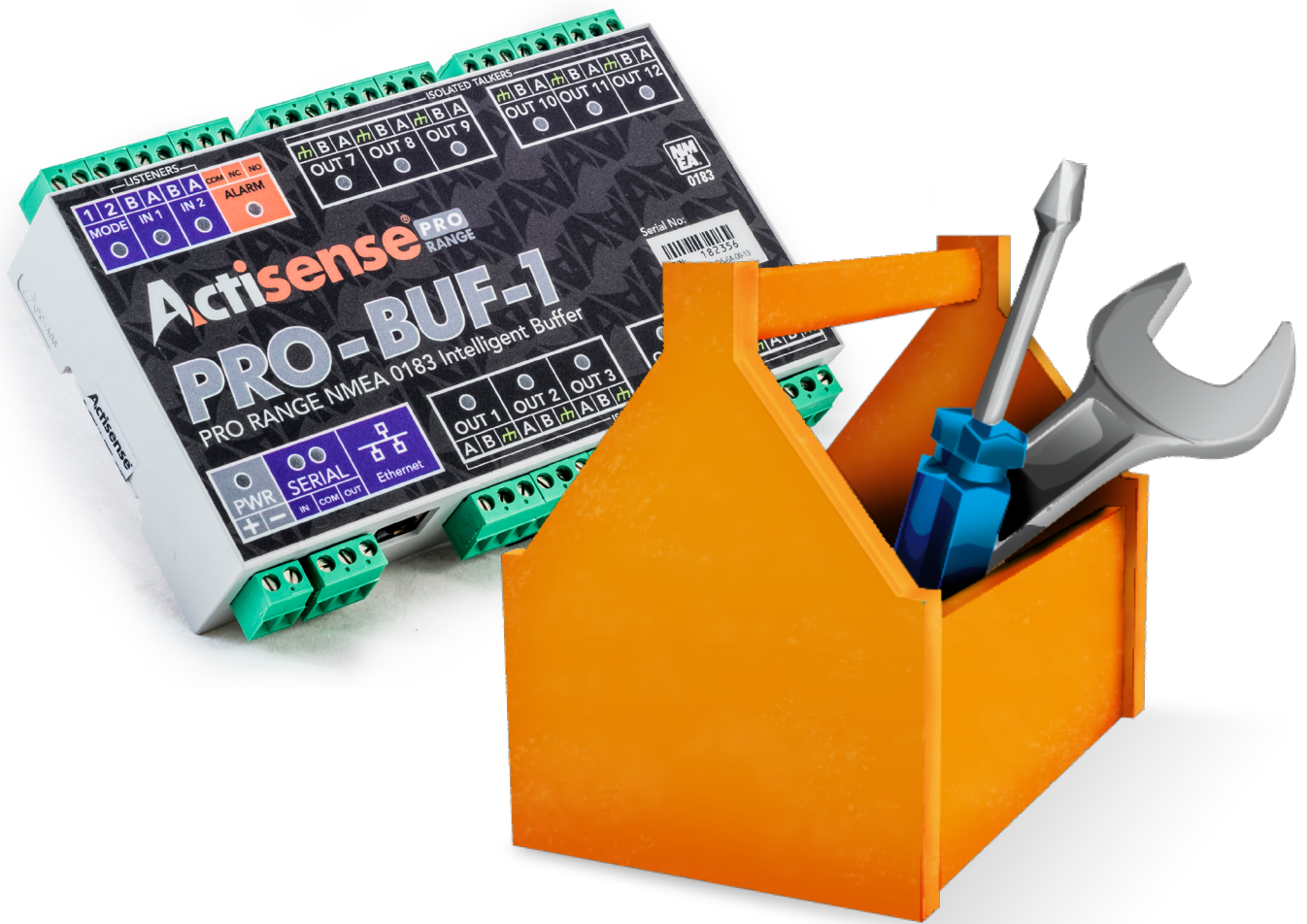


Actisense[®]

Award Winning NMEA Specialists



PRO-BUF Configuration Manual for Actisense Toolkit

Trademarks and Registered Trademarks

Actisense® and the Actisense logo are registered trademarks of Active Research Limited (Ltd). All other trademarks are the property of their respective owners.

The NMEA® name and NMEA logo are copyright held by the NMEA. All uses in this manual are by permission and no claim on the right to the NMEA name or logo are made in this manual.

Fair Use Statement

The contents of this manual may not be transferred or copied without the express written permission of Active Research Ltd. Copyright © 2017 Active Research Ltd. All rights reserved.

Technical Accuracy

To the best of our knowledge the information contained in this document was correct at the time it was produced. Active Research Ltd cannot accept liability for any inaccuracies or omissions.

The products described in this manual and the specifications thereof may be changed without prior notice. Active Research Ltd cannot accept any liability for differences between the product and this document. To check for updated information and specifications please check actisense.com.

Active Research Ltd will not be liable for infringement of copyright, industrial property rights, or other rights of a third party caused by the use of information or drawings described in this manual.

Contents

Trademarks and Registered Trademarks	2
Fair Use Statement.....	2
Technical Accuracy.....	2
Using the EMU-1 Configuration options in the Actisense Toolkit	4
Connecting the PRO-BUF-1 to Actisense Toolkit.....	4
Updating or Downgrading the PRO-BUF-1 Firmware Using Actisense Toolkit	5
Viewing NMEA 0183 data.....	6

Using the PRO-BUF-1 Configuration options in the Actisense Toolkit

Before getting started, the PRO-BUF-1 needs to be powered up as per the [user manual](#).

- The PRO-BUF-1 needs to be connected to either an operational Ethernet network, or directly to an Ethernet port on a Windows PC/laptop (XP, Vista, 7, 8, 8.1, or 10) running Actisense Toolkit. If a direct connection is used, an Ethernet patch cable may be used (instead of a crossover cable) as the PRO-BUF-1 will automatically adjust the transmit and receive settings accordingly.
- The PRO-BUF-1 serial port also requires connection to the same Windows PC/Laptop running Actisense Toolkit. If using the [Actisense USG-2](#) to make this serial connection, the latest Actisense USB drivers must be installed. If there is a working internet connection in the PC when the USG-2 is plugged in, and if the operating system settings allow automatic updates from Windows, the latest USB drivers will download automatically. If this fails, the same USB driver files are available as a pre-installer on the CD provided or from the [Actisense website](#).

Connecting the PRO-BUF-1 to Actisense Toolkit

1. Launch Actisense Toolkit.
2. Select the COM port of the serial device connected to the PRO-BUF-1's serial port from the 'COM ports' list. The selected COM port will be remembered for all future sessions but it can be changed at any time if required.
3. Select the correct baud rate for PRO-BUF-1 serial port. Default baud rate is 115200. The PRO-BUF-1 serial port baud rate can be modified using the 'Setup Wizard' tab in the web based configuration tool.
4. Select the PRO-BUF-1 to be configured/updated in the 'Network List View' window.

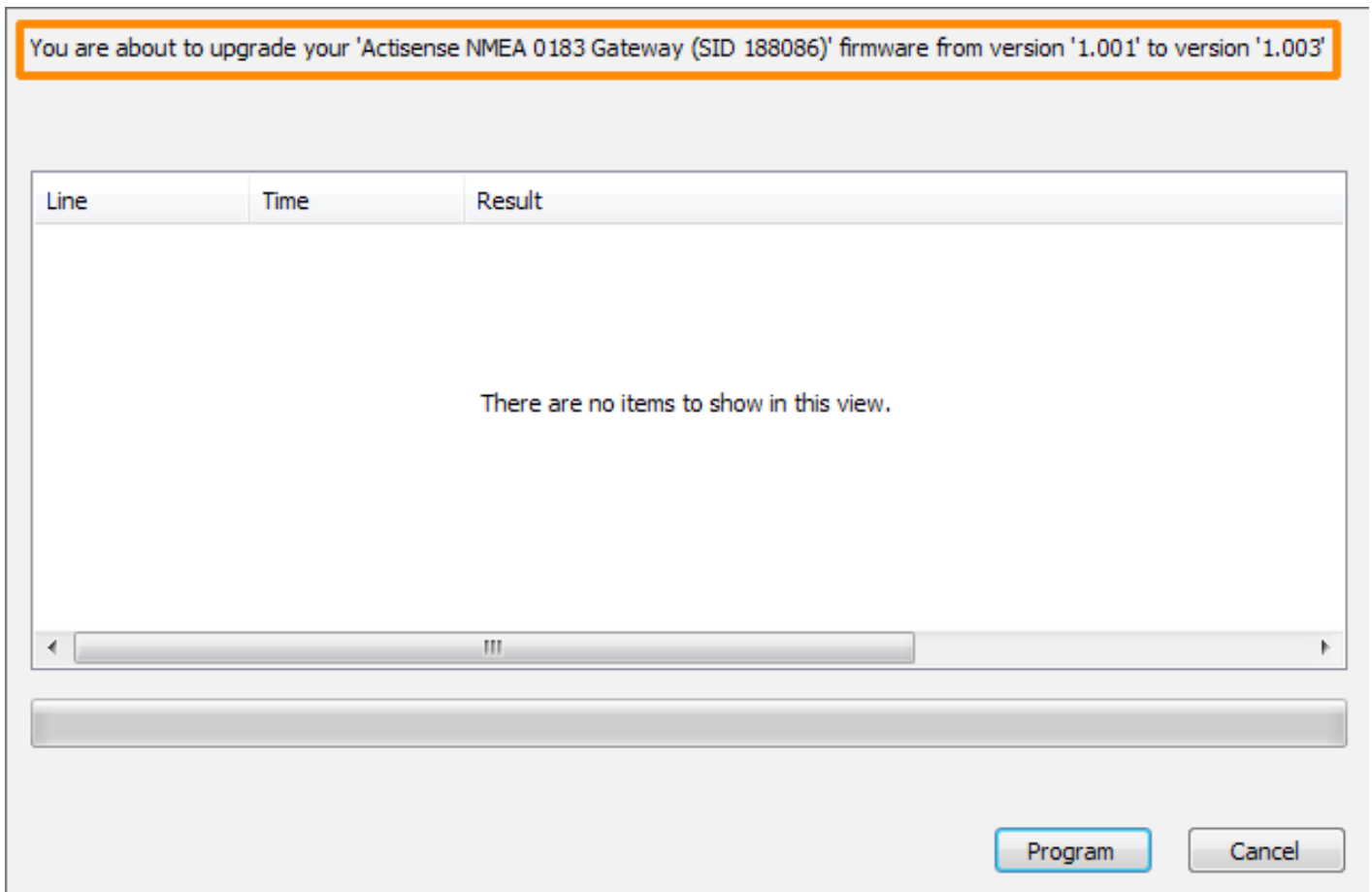
The PRO-BUF-1 device properties, including serial number and software (firmware) version can be seen in the 'Properties' Window in Actisense Toolkit. This information is also available on the 'Home' page of the PRO-BUF-1 web based configuration tool.

Properties	
Property	Value
<input checked="" type="checkbox"/> Name	
Name (64-bit)	C03287002222DEB6
Industry Group	Marine (4)
System Instance	0 (0x00)
Device Class	Internetwork Device (25)
Device Function	NMEA 0183 Gateway (135)
Device Instance	0 (0x00)
Manufacturer ID	Actisense (273)
Unique ID	188086 (0x2DEB6)
<input checked="" type="checkbox"/> NMEA Product Info	
Database Version	Not Available
Product ID	Not Available
Manu Model ID	"Professional Buffer (PRO-BUF-1)"
Manu Software Version	"1.000, 1.001"
Manu Hardware Version	"PRO-BUF-1 [1]"
Manu Model Serial	"188086"
Certification Level	Not Available
Load Equivalency Number	Not Available

Updating or Downgrading the PRO-BUF-1 Firmware Using Actisense Toolkit

The [PRO-BUF-1 firmware 'Release Notes'](#) document (that details all PRO-BUF-1 firmware changes) and the [Actisense Toolkit 'Release Notes'](#) document (that details all changes to Toolkit plus a complete list of the product firmware updates available) can be found on the PRO-BUF-1's Download page.

- To **upgrade** the PRO-BUF-1 firmware (to the latest version available to Toolkit), click the 'Update firmware' button followed by 'Program'. The firmware version being updated to can be seen at the top of the programming window visible during the upgrade process.



- To **downgrade** the PRO-BUF-1 firmware (to an older version that is still compatible), click the arrow under the 'Downgrade firmware' button and select the version required. Follow the on screen instructions and if acceptable, click the 'Program' button.

Viewing NMEA 0183 data

To view the NMEA 0183 data being sent from any of the PRO-BUF-1 'Isolated Talker' outputs, either connect it to a PC/laptop's serial port, or to a USB-to-Serial converter plugged in to a USB port.

NMEA Reader is used to view all the NMEA 0183 messages transmitted by the PRO-BUF-1. This feature will be integrated in to Toolkit in a future update. If the same device is to be used for viewing data in NMEA Reader as well as using Toolkit, the **COM port** in Toolkit will need to be closed (set to '**Offline**') before it can be opened in NMEA Reader.

Once the COM port is opened successfully in NMEA Reader, select the **Data View** and **Details** tabs. The decoded details of the selected message in the **Data View** tab are shown field by field in the **Details** tab.

In the example shown, the PRO-BUF-1 is sending data identified as originating from an NMEA 0183 GPS (Talker ID: GP). The highlighted NMEA 0183 sentence is VTG, 'Course Over Ground and Ground Speed'. The details tab indicates:

- 'True Course Over Ground (COG)' = 090.8 degrees
- 'Magnetic COG' = 095.3 degrees
- 'Speed Over Ground, knots' = 01.2
- 'Speed Over Ground, km/hr' = 02.2

The screenshot shows the NMEA Reader application window. The main table displays a list of received NMEA sentences. The selected sentence is Line 2, Talker GP, Formater VTG, Name 'Course Over Ground and Ground Speed'. The details pane on the right provides a breakdown of this sentence's fields.

Line	Talker	Formater	Name	Time	Interval	Data
1	P	GRME	[Unknown]	15:30:36:927	1.06	\$PGRME,60.2,M,,M,60.2,M*00
2	GP	VTG	Course Over Ground and Ground Speed	15:30:37:333	0.52	\$LCVTG,090.8,T,095.3,M,01.2,N,02.2,K
3	LC	GLL	Geographic PositionLatitude/Longitude	15:30:37:192	1.06	\$LCGLL,5044.4682,N,00157.1158,W,122557,A
4	GP	RMC	Recommended Minimum Specific GNSS ...	15:30:36:319	1.07	\$GPRMC,122557,A,5044.4682,N,00157.1158,W,00...
5	GP	GGA	Global Positioning System Fix Data	15:30:36:459	1.06	\$GPGGA,122557,5044.4682,N,00157.1158,W,1,04...
6	GP	GSV	GNSS Satellites in View	15:30:36:756	0.72	\$GPGSV,2,2,07,09,68,278,35,21,22,315,,26,55,14...
7	P	GRMV	[Unknown]	15:30:36:880	1.07	\$PGRMV,0.4,0.5,0.0*5D
8	GP	RMB	Recommended Minimum Navigation Infor...	15:30:13:792	1.18	\$GPRMB,A,0.0,L,ECHO,LIGHT,5010.1000,N,0015...

NMEA 0183 Sentence: LC VTG (Course Over Ground and Ground Speed)	
Number of Fields	= 8
Original Length	= 36
Description	= The actual course and speed relative to the ground.
Field 0:	COG True = 090.8
Field 2:	COG Magnetic = 095.3
Field 4:	Speed over ground, knots = 01.2
Field 6:	Speed over ground, km/hr = 02.2



Active Research Ltd
21 Harwell Road
Poole, Dorset
UK, BH17 0GE

Tel: +44 (0)1202 746682
Email: sales@actisense.com
Web: www.actisense.com

