Important Notices

The device to which this manual relates complies with the Electromagnetic Compatibility requirements according to EN60945. The unit should always be used in conjunction with appropriately approved, shielded cable and connectors as per NMEA 0400 to ensure compliance. A declaration of conformity is available for download at www.actisense.com.

If the device to which this manual relates is to be installed within five metres of a compass, please refer to the 'Compass Safe Distance' section in the 'Technical Specifications' table.

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Product Disposal

Please dispose of this product in accordance with the WEEE Directive. The product should be taken to a registered establishment for the disposal of electronic equipment.

Product Registration

Please register your product via the online form at www.actisense.com/support/prodreg.

Your product package includes a unit serial number. The serial number is six digits long and can be found below the barcode on the label. Your registration will assist Actisense Support to link your product to your details, simplifying any future assistance you may require.

Product Guarantee

All Actisense products are provided with a 3 year guarantee as standard. To activate the 5-year guarantee offered with this product please complete product registration either online at www.actisense.com/support/prodreg or by completing and returning the warranty card supplied in the box with the product.

If you suspect that the unit is faulty please refer to the Troubleshooting Section of the User Manual before contacting support.

It is a requirement of the guarantee that all installations of electronic equipment follow the NMEA 0400 specification. Any connection to a battery or power supply must meet the mandatory essential safety requirements that may be imposed by local regulatory agencies.

Actisense products are intended for use in a marine environment, primarily for below deck use. If a product is to be used in a more severe environment, such use may be considered misuse under the Active Research Ltd guarantee.

Introduction & Features

PRO-BUF-1 is reliable, robust and provides industry leading isolation with on all inputs and outputs as standard, enabling safe connection of all devices and avoiding hazardous ground loops. With two NMEA 0183 inputs, twelve NMEA 0183 outputs, a bi-directional serial port and an Ethernet port, the PRO-BUF-1 is a perfect solution for large networks on commercial shipping and leisure vessels.

The PRO-BUF-1 is designed to suit the majority of NMEA 0183 systems and ready to go 'out of the box' by simply hard-wiring the two mode inputs as required which can drastically reduce installation time with no complicated setup required. Helpful LEDs indicate power, data in, data out and the alarm status to aid diagnostics.

Before getting started

The wire colours used in this quick start guide are in accordance with the NMEA 0183 specification (v.4.10, June 2014) and are for illustration purposes only. Please ensure you check the wiring colours in the installation instructions for the devices you wish to interface to the PRO-BUF-1.
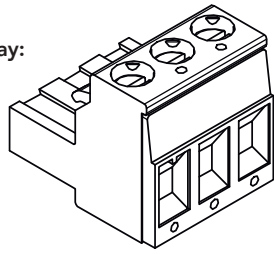
Terminals

The PRO-BUF-1 comes with two main choices for its 2-way and 3-way connectors: 'screw' (-R) or 'screwless' (-S).
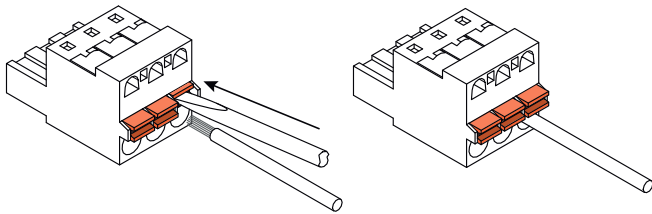
Screw Connector
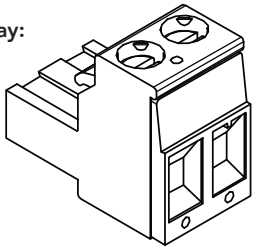
2-way: **3-way:**

Screwless connector

Open the clamp inside the screwless connector by pressing down on the orange button with a small (2mm) flat headed screwdriver. This will allow the wire to be inserted. For best connections do not twist the wire strands.

Release the orange button to lower the clamp on to the wire strands for a secure termination.

RF Ground

The shield from each Listener should be connected to the ⏚ terminal on the PRO-BUF-1 'Isolated Talkers' ports. All ⏚ terminals are connected internally and form a common bonding point at the RF ground stud.

The RF ground stud should be connected to the vessels RF ground plate using a minimum conductor size of 8 AWG (10mm^2) in accordance with NMEA 0400, (in version 3.1, this is in section 3.2).
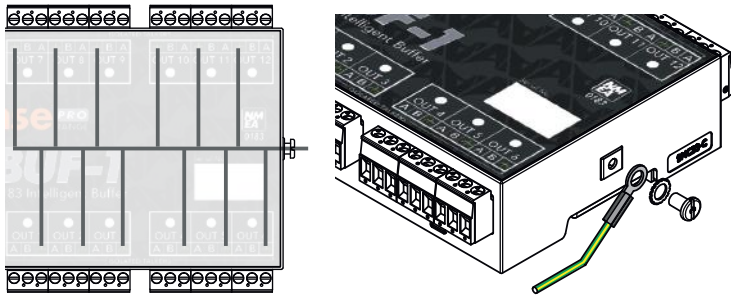
LED functions

| Name	Description
'PWR'	Pulses blue to indicate presence of power.
'Out'	Flashes at a rate determined by baud rate and data length.
'In'	Flashes on receipt of valid data.
"Serial' In/Out	As 'In' & 'Out' above.
'Ethernet'	Green LED for activity, yellow LED for line speed: off = 10mbps, on = 100mbps.
'Alarm'	Red during alarm condition.
'Mode'	Number of flashes = mode number. Refer to 'Mode Table' sheet for full details.

DIN rail fixing

Install the DIN rail in the desired location.

Fully retract the black securing latch in to the down position.

Attach the PRO-BUF-1 to the DIN rail as shown in the diagrams below.

Ensure the PRO-BUF-1 sits flush against the DIN rail, then push the securing latch back in to position to hold the PRO-BUF-1 in place.

Latch down
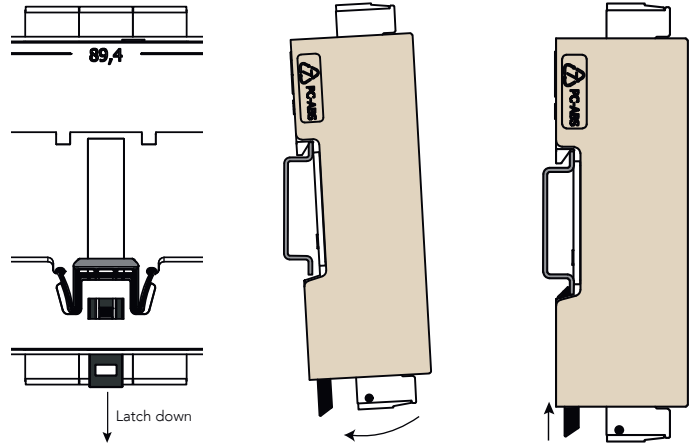
Operating Modes

The PRO-BUF-1 can be configured manually using the 'Mode' pins (also referred to as 'hard-wiring') or user configured via the Configuration Tool. Manually configuring the PRO-BUF-1 takes priority over any user configuration. The factory default setting of the PRO-BUF-1 is 'Buffer Mode 3'.

Hard-wiring the operating modes

For a list of modes and how to set them up, please refer to the 'Mode Table' sheet included with the PRO-BUF-1 or available from the PRO-BUF-1 'Downloads' page on the Actisense website.

Web browser configuration tool

The Configuration Tool for the PRO-BUF-1 is built-in and can be accessed via the Ethernet connection. An internet connection is not required to access the Configuration Tool. The factory default log-in for both username and password is "admin". A future firmware update will allow individual username and password log-ins to be remembered and used.

Standard Ethernet networks
If the PRO-BUF-1 is connected to an Ethernet network containing both DHCP and DNS servers, launch any popular web browser and enter '//probuf-xxxxxx' in to the address bar (replacing 'xxxxxx' with the product's serial number).

Direct connections or basic Ethernet networks
If the PRO-BUF-1 is connected directly to a PC (or the Ethernet network does not have a DHCP server), the PRO-BUF-1 will communicate using auto-IP by default. The auto-IP process can take up to 60 seconds to complete.

Basic tech specs

Power Supply	
Input supply voltage	10 to 35 V DC
Input supply current	325mA max @ 12V DC (all outputs @ full drive into 100 ohm loads)
NMEA 0183 Port - Listener & Talker	
Compatibility	Fully NMEA 0183, RS422 & RS232 compatible. RS485 Listener compatible
Electrical isolation	2500 V input to ground, 1500 V output to ground using ISO-Drive™
Speed / baud rate	4800 to 38400 bps
Talker output current drive	20 mA maximum per output
Mechanical	
Mounting	DIN rail mount (35mm top hat rail EN 50 022)
Compass safe distance	TBD
Wiring terminals	Pluggable 2/3 way screw or screwless connectors, 5mm pitch, 12 to 30 AWG