# Connect **without limits**

## **PRO-BUF-2 PROFESSIONAL NMEA 0183 INTELLIGENT BUFFER**

Type Approved, intelligent NMEA 0183 Buffer with two OPTO-isolated inputs and twelve ISO-Drive<sup>™</sup>isolated outputs. Offering device protection and excellent flexibility, all in one product.

Introducing the Actisense® PRO-BUF-2, the intelligent, Type Approved PRO range buffer.

The PRO-BUF-2 is rugged, with a stainless steel housing and provides isolation on all inputs and outputs. With two NMEA 0183 inputs, twelve NMEA 0183 outputs, a bi-directional serial port and an Ethernet port, the PRO-BUF-2 is a perfect solution for larger leisure vessels, commercial shipping and is a great addition for systems which require Type Approved devices.

The PRO-BUF-2 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.

The manually configurable basic modes of operation include variations of buffer modes, intelligent autoswitch, and combine modes.

For all other configurations, leaving the mode inputs floating selects the 'User Configuration Mode'. The web based configuration tool allows full customisation of the PRO-BUF-2, and is compatible across all popular Operating Systems. Using the web based configuration tool allows for fine tuning of the data available on each output.

To make installation quick and simple the PRO-BUF-2 features 2-part pluggable connectors that allow use of screw terminals\*, The PRO-BUF-2 is designed to be mounted on a bulkhead or alternatively it can be mounted on a DIN Rail using the optional brackets. An optional Strain Relief Bracket is available to secure cables if necessary.

Helpful LEDs indicate power, data in, data out and the alarm status to aid diagnostics.



### Features:

2 x Configurable NMEA 0183 **OPTO-isolated inputs** 

12 x Configurable NMEA 0183 ISO-Drive<sup>™</sup> isolated outputs

1 x bi-directional isolated serial port

NMEA 0183 over Ethernet

1 x Alarm output (N/O and N/C contacts)

Pre-defined modes of operation

'User Configuration Mode'

**Diagnostic LEDs** (power, data in/out & alarm)

Designed for 12 and 24 Volt supply

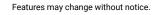
Isolation to battery supply

Advanced Data Filtering/Routing

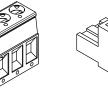
Automatic baud rate matching on inputs

'Future proof' easily upgraded firmware

1000V Isolation on I/O and Serial Ports

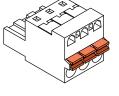






Screw Terminals

Connector types:



A-CONPACK-PBUF2 -Screwless Terminals available as an accessory

Easy USB connection with a USB kit lead (sold seperately)





#### Le spécialiste des équipements électroniques

Zac de la plaine - 1, rue Brindejonc des Moulinais 31500 TOULOUSE Tél: +33 (0)5 67 77 94 44 info@pst-france.fr - www.pst-france.fr

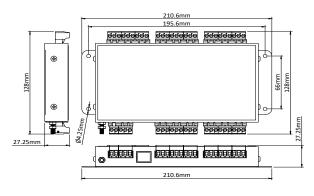
# **PRO-BUF-2** Specifications

GEEK MODE ON

Power Supply         Input Supply Voltage         10 to 35 VDC           Input Supply Current         325mA max @ 12V DC (all outputs @ full drive into 100 ohm loads)           Input Protection         Continuous reverse polarity, transient overvoltage and ESD protection           Power Indicator         LED, Blue - Indicates unit is functioning correctly           Input Supply Connector         Pluggable 2-way screw terminal, 5.08mm pitch           WMEA 0138 Port - Listener / Input         2 isolated NMEA 0183 Listeners           Number of Listener / Input         12 isolated NMEA 0183 Talkers           Ports         2 isolated NMEA 0183, SM222 & RS232 compatible.           RS485 Listener compatible         Speed / baud rate           4800 to 38400 bps         731ker Output Voltage Drive           ralker Output Voltage Drive         >= 2.2V (differential) into 100 ohm           Talker Output Current Drive         20 mA maximum per output           Talker Output Current Drive         20 mA maximum per output           Talker Output Protection         Short circuit and ESD           Listener Input Voltage         -15 V to +15 V continuous, -35 V to +35 V short           Tolerance         term (< 1second)           Listener Input Protection         RS422 & RS232 compatible. RS485 Listener           Connectors         Pluggable 2/3-way screw terminals, 5.08mm pitch		
Input Supply Current         325mA max @ 12V DC (all outputs @ full drive into 100 ohm loads)           Input Protection         Continuous reverse polarity, transient overvoltage and ESD protection           Power Indicator         LED, Blue - Indicates unit is functioning correctly           Input Supply Connector         Pluggable 2-way screw terminal, 5.08mm pitch           NMEA 0183 Port - Listener & Talker         Number of Listener / Input           Ports         2 isolated NMEA 0183 Talkers           Number of Talker / Output         Fully NMEA 0183, RS422 & RS232 compatible. RS485 Listener compatible           Speed / baud rate         4800 to 38400 bps           Talker Output Voltage Drive         > 2.2 V (differential) into 100 ohm           Talker Output Voltage Drive         > 2.2 V (differential) into 100 ohm           Talker Output Voltage         -15 V to +15 V continuous, -35 V to +35 V short           Tolerance         term (< 1 second)           Listener Input Protection         Current limited, overdrive protection to 40 VDC and ESD protection           Listener Data Indicator         LED, Green (Flashes to indicate valid input)           Connectors         Pluggable 2/3-way screw terminals, 5.08mm pitch           Sefal Port         Sefal Port           Compatibility         Short circuit and ESD           Output Voltage Drive         > 2.1V (differential) into 100 ohm	Power Supply	
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and ESD protection           Power Indicator         LED, Blue - indicates unit is functioning correctly           Input Supply Connector         Pluggable 2-way screw terminal, 5.08mm pitch           NMEA 0183 Port - Listener & Talker         Number of Listener / Input           Ports         2 isolated NMEA 0183 Listeners           Number of Talker / Output         Ports           Ports         12 isolated NMEA 0183 Talkers           Compatibility         Fully NMEA 0183, RS422 & RS232 compatible.           RS485 Listener compatible         Speed / baud rate           Alker Output Voltage Drive         >= 2.2V (differential) into 100 ohm           Talker Output Cortent Drive         20 mA maximum per output           Talker Output Cortent Drive         20 mA maximum per output           Talker Output Voltage         -15 V to +15 V continuous, -35 V to +35 V short           Tolerance         term (< 1 second)	Innut Drotostic -	Continuous reverse polarity, transient overvoltage
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Ports         12 isolated NMEA 0183 Talkers           Compatibility         Fully NMEA 0183, RS422 & RS232 compatible. RS485 Listener compatible           Speed / baud rate         4800 to 38400 bps           Talker Output Voltage Drive         >= 2.2V (differential) into 100 ohm           Talker Output Current Drive         20 mA maximum per output           Talker Output Protection         Short circuit and ESD           Talker Data Indicator         LED, Orange (Flashes at data rate)           Listener Input Voltage         -15 V to +15 V continuous, -35 V to +35 V short           Tolerance         term (<1 second)	Ports	2 Isolated Mile 0103 Eisteners
Ports         Fully NMEA 0183, RS422 & RS232 compatible. RS485 Listener compatible           Speed / baud rate         4800 to 38400 bps           Talker Output Voltage Drive         >= 2.2V (differential) into 100 ohm           Talker Output Current Drive         20 mA maximum per output           Talker Output Protection         Short circuit and ESD           Talker Data Indicator         LED, Orange (Flashes at data rate)           Listener Input Voltage         -15 V to +15 V continuous, -35 V to +35 V short           Tolerance         term (<1 second)	Number of Talker / Output	12 isolated NMEA 0192 Talkers
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Input Voltage Tolerance       term (< 1 second)	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.
Input Protection       Current limited, overdrive protection to 40 VDC and ESD protection         Data Indicators       LED's: Green = Receive, Orange = Transmit         Connectors       Pluggable 3-way screw terminals, 5.08mm pitch         Ethernet Port       Host Interface         Host Interface       10/100BaseT, automatic polarity detection         Supported Protocols       TCP/IP for configuration and firmware updating         Indicators       Green = Link/Activity, Yellow = 100 Mbps         Connector       RJ45         Isolation       Uses IsoDrive™, Hi-Pot tested to 1000V         NMEA 0183 Listener       OPTO-Isolated, Hi-Pot tested to 1000V         Serial Port       Uses IsoDrive™, Hi-Pot tested to 1000V         Alarm Relay       Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive	compatible         4800 to 115200 bps         >= 2.1V (differential) into 100 ohm         20 mA max.         Short circuit and ESD
Input Protectionand ESD protectionData IndicatorsLED's: Green = Receive, Orange = TransmitConnectorsPluggable 3-way screw terminals, 5.08mm pitchEthernet PortHost Interface10/100BaseT, automatic polarity detectionBupported ProtocolsTCP/IP for configuration and firmware updatingTCP/IP and UDP for NMEA 0183 commsIndicatorsGreen = Link/Activity, Yellow = 100 MbpsConnectorRJ45IsolationNMEA 0183 ListenerOPTO-Isolated, Hi-Pot tested to 1000VNMEA 0183 TalkerUses IsoDrive™, Hi-Pot tested to 1000VSerial PortUses IsoDrive™, Hi-Pot tested to 1000VAlarm RelayHi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.Short circuit and ESD-15 V to +15 V continuous, -35 V to +35 V short
Data Indicators       LED's: Green = Receive, Orange = Transmit         Connectors       Pluggable 3-way screw terminals, 5.08mm pitch         Ethernet Port       Host Interface       10/100BaseT, automatic polarity detection         Supported Protocols       TCP/IP for configuration and firmware updating         Indicators       Green = Link/Activity, Yellow = 100 Mbps         Connector       RJ45         Isolation       OPTO-Isolated, Hi-Pot tested to 1000V         NMEA 0183 Listener       OPTO-Isolated, Hi-Pot tested to 1000V         Serial Port       Uses IsoDrive™, Hi-Pot tested to 1000V         Alarm Relay       Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection	compatible         4800 to 115200 bps         >= 2.1V (differential) into 100 ohm         20 mA max.         Short circuit and ESD         -15 V to +15 V continuous, -35 V to +35 V short         term (< 1 second)
Connectors       Pluggable 3-way screw terminals, 5.08mm pitch         Ethernet Port         Host Interface       10/100BaseT, automatic polarity detection         Supported Protocols       TCP/IP for configuration and firmware updating         Indicators       Green = Link/Activity, Yellow = 100 Mbps         Connector       RJ45         Isolation       OPTO-Isolated, Hi-Pot tested to 1000V         NMEA 0183 Listener       OPTO-Isolated, Hi-Pot tested to 1000V         Serial Port       Uses IsoDrive™, Hi-Pot tested to 1000V         Alarm Relay       Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.Short circuit and ESD-15 V to +15 V continuous, -35 V to +35 V shortterm (< 1 second)
Ethernet Port         Host Interface       10/100BaseT, automatic polarity detection         Supported Protocols       TCP/IP for configuration and firmware updating         Indicators       Green = Link/Activity, Yellow = 100 Mbps         Connector       RJ45         Isolation       OPTO-Isolated, Hi-Pot tested to 1000V         NMEA 0183 Listener       OPTO-Isolated, Hi-Pot tested to 1000V         Serial Port       Uses IsoDrive™, Hi-Pot tested to 1000V         Alarm Relay       Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Protection	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.Short circuit and ESD-15 V to +15 V continuous, -35 V to +35 V shortterm (< 1 second)
Host Interface       10/100BaseT, automatic polarity detection         Supported Protocols       TCP/IP for configuration and firmware updating         TCP/IP and UDP for NMEA 0183 comms       TCP/IP and UDP for NMEA 0183 comms         Indicators       Green = Link/Activity, Yellow = 100 Mbps         Connector       RJ45         Isolation       V         NMEA 0183 Listener       OPTO-Isolated, Hi-Pot tested to 1000V         NMEA 0183 Talker       Uses IsoDrive™, Hi-Pot tested to 1000V         Serial Port       Uses IsoDrive™, Hi-Pot tested to 1000V         Alarm Relay       Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Protection Data Indicators	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.Short circuit and ESD-15 V to +15 V continuous, -35 V to +35 V shortterm (< 1 second)
Supported Protocols       TCP/IP for configuration and firmware updating         TCP/IP and UDP for NMEA 0183 comms         Indicators       Green = Link/Activity, Yellow = 100 Mbps         Connector       RJ45         Isolation         NMEA 0183 Listener       OPTO-Isolated, Hi-Pot tested to 1000V         NMEA 0183 Talker       Uses IsoDrive™, Hi-Pot tested to 1000V         Serial Port       Uses IsoDrive™, Hi-Pot tested to 1000V         Alarm Relay       Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Protection Data Indicators Connectors	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.Short circuit and ESD-15 V to +15 V continuous, -35 V to +35 V shortterm (< 1 second)
Supported Protocols     TCP/IP and UDP for NMEA 0183 comms       Indicators     Green = Link/Activity, Yellow = 100 Mbps       Connector     RJ45       Isolation     NMEA 0183 Listener       NMEA 0183 Talker     Uses IsoDrive™, Hi-Pot tested to 1000V       Serial Port     Uses IsoDrive™, Hi-Pot tested to 1000V       Alarm Relay     Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Protection Data Indicators Connectors Ethernet Port	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.Short circuit and ESD-15 V to +15 V continuous, -35 V to +35 V shortterm (< 1 second)
Indicators       Green = Link/Activity, Yellow = 100 Mbps         Connector       RJ45         Isolation       NMEA 0183 Listener         NMEA 0183 Talker       OPTO-Isolated, Hi-Pot tested to 1000V         NMEA 0183 Talker       Uses IsoDrive™, Hi-Pot tested to 1000V         Serial Port       Uses IsoDrive™, Hi-Pot tested to 1000V         Alarm Relay       Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Protection Data Indicators Connectors Ethernet Port	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.Short circuit and ESD-15 V to +15 V continuous, -35 V to +35 V shortterm (< 1 second)
Connector     RJ45       Isolation       NMEA 0183 Listener     OPTO-Isolated, Hi-Pot tested to 1000V       NMEA 0183 Talker     Uses IsoDrive™, Hi-Pot tested to 1000V       Serial Port     Uses IsoDrive™, Hi-Pot tested to 1000V       Alarm Relay     Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Protection Data Indicators Connectors Ethernet Port Host Interface	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.Short circuit and ESD-15 V to +15 V continuous, -35 V to +35 V shortterm (< 1 second)
Isolation           NMEA 0183 Listener         OPTO-Isolated, Hi-Pot tested to 1000V           NMEA 0183 Talker         Uses IsoDrive™, Hi-Pot tested to 1000V           Serial Port         Uses IsoDrive™, Hi-Pot tested to 1000V           Alarm Relay         Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Voltage Tolerance Connectors Ethernet Port Host Interface Supported Protocols	compatible         4800 to 115200 bps         >= 2.1V (differential) into 100 ohm         20 mA max.         Short circuit and ESD         -15 V to +15 V continuous, -35 V to +35 V short term (< 1 second)
NMEA 0183 Listener     OPTO-Isolated, Hi-Pot tested to 1000V       NMEA 0183 Talker     Uses IsoDrive™, Hi-Pot tested to 1000V       Serial Port     Uses IsoDrive™, Hi-Pot tested to 1000V       Alarm Relay     Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Voltage Tolerance Connectors Ethernet Port Host Interface Supported Protocols Indicators	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.Short circuit and ESD-15 V to +15 V continuous, -35 V to +35 V shortterm (<1 second)
NMEA 0183 Talker     Uses IsoDrive™, Hi-Pot tested to 1000V       Serial Port     Uses IsoDrive™, Hi-Pot tested to 1000V       Alarm Relay     Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Voltage Tolerance Input Protection Data Indicators Connectors Ethernet Port Host Interface Supported Protocols Indicators Connector	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.Short circuit and ESD-15 V to +15 V continuous, -35 V to +35 V shortterm (<1 second)
Serial Port     Uses IsoDrive™, Hi-Pot tested to 1000V       Alarm Relay     Hi-Pot tested to 1000V	CompatibilitySpeed / baud rateOutput Voltage DriveOutput Current DriveOutput ProtectionInput Voltage ToleranceInput ProtectionData IndicatorsConnectorsEthernet PortHost InterfaceSupported ProtocolsIndicatorsConnectorSupported ProtocolsIndicatorsConnectorIndicators	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.Short circuit and ESD-15 V to +15 V continuous, -35 V to +35 V shortterm (< 1 second)
Alarm Relay Hi-Pot tested to 1000V	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Voltage Tolerance Input Protection Data Indicators Connectors Ethernet Port Host Interface Supported Protocols Indicators Connector Isolation NMEA 0183 Listener	compatible4800 to 115200 bps>= 2.1V (differential) into 100 ohm20 mA max.Short circuit and ESD-15 V to +15 V continuous, -35 V to +35 V shortterm (< 1 second)
,	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Voltage Tolerance Input Protection Data Indicators Connectors Ethernet Port Host Interface Supported Protocols Indicators Connector Isolation NMEA 0183 Listener NMEA 0183 Talker	compatible         4800 to 115200 bps         >= 2.1V (differential) into 100 ohm         20 mA max.         Short circuit and ESD         -15 V to +15 V continuous, -35 V to +35 V short         term (< 1 second)
Ethernet Port 2kV for 60s	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Voltage Tolerance Input Protection Data Indicators Connectors Ethernet Port Host Interface Supported Protocols Indicators Connector Isolation NMEA 0183 Listener NMEA 0183 Talker	compatible         4800 to 115200 bps         >= 2.1V (differential) into 100 ohm         20 mA max.         Short circuit and ESD         -15 V to +15 V continuous, -35 V to +35 V short         term (< 1 second)
	Compatibility Speed / baud rate Output Voltage Drive Output Current Drive Output Protection Input Voltage Tolerance Input Voltage Tolerance Input Protection Data Indicators Connectors Ethernet Port Host Interface Supported Protocols Indicators Connector Isolation NMEA 0183 Listener NMEA 0183 Talker Serial Port	compatible         4800 to 115200 bps         >= 2.1V (differential) into 100 ohm         20 mA max.         Short circuit and ESD         -15 V to +15 V continuous, -35 V to +35 V short         term (< 1 second)

Mode Inputs	
Input Voltage Range	0 to 35V DC
Protection	Transient overvoltage and ESD protection
Connectors	Pluggable 2-way screw terminals, 5.08mm pitch
Alarm Output	
Contacts	Common, Normally Open and Normally Closed
Alarm Indicator	LED, Red indicates a valid alarm condition
Contact Ratings	35VAC / 50VDC
Connectors	Pluggable 3-way screw terminals, 5.08mm pitch
Mechanical	
Housing Material	316 Stainless Steel
Dimensions	210mm (W) x 128mm (H) x 27mm (D)
Weight	530g
Mounting	Bulkhead mount or DIN rail mount (DIN kit 1)
Approvals and Certifications	
EMC	IEC 60945:2002-08, DNVGL-CG-0339:2019 & IACS
	UR E10 Rev7
Compass Safe Distance	750mm
Type Approval Certificate	RINA
Operating Temperature	-25 to +70°C
Storage Temperature	-40 to +85°C
Relative Humidity (RH)	95% @ 55°C
Environmental Protection	IP40

### **Product Dimensions**



Part Number	Description
PRO-BUF-2	2 OPTO input, 12 ISO-Drive outputs professional Type Approved Buffer
	Accessory Description
DIN-KIT-1	Kit of 2 clips & 4 screws. Use with top hat (EN 50 022) or G section (EN 50 035) rails
A-CONPACK- PBUF2	Pluggable Screwless Terminal pack for PRO-BUF-2
SRB-90	Kit of 2 x 90mm Stainless Steel Strain Relief Brackets
USBKIT-PRO	USB To Serial Adapter for use with PRO range products