

## MANUAL

### MODEL XP15 NMEA 0183 Expander

**DESCRIPTION:** The XP15 Expander is an advanced version of its predecessor (XP14) with an additional output, a bicolor status LED and more short circuit protection on the outputs. It enables NMEA 0183 talkers to drive multiple listeners. It provides a single opto-isolated input and four independent differential RS-422 outputs plus a fifth RS-232 output for driving single-ended listeners such as PC's. Although intended for 4800 baud operation, it will also operate at 9600 baud.

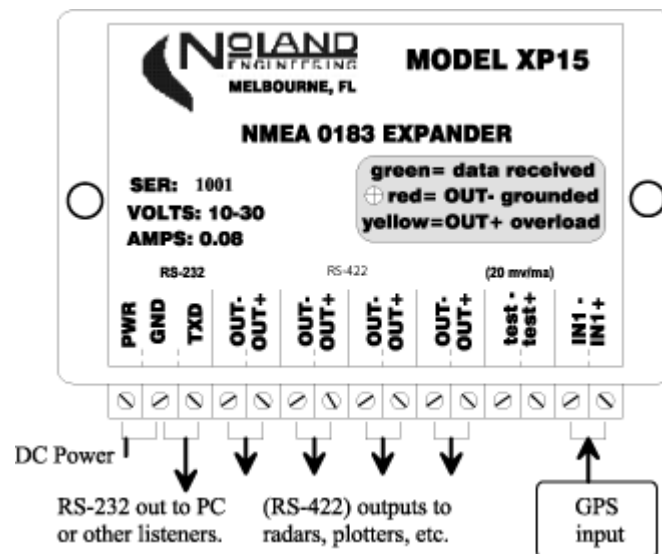
Many marine instruments, although compliant with the NMEA 0183 specification, do not provide sufficient drive capability for multiple listeners. To overcome this, the XP15 has five outputs, each of which can drive multiple listeners if needed. All outputs are isolated from each other, so that shorting one will not affect the others.

The XP15 can operate on any DC voltage from 10-30 Vdc. A bicolor LED on the unit flashes green when input data is detected, but will turn red or yellow if a supply current

overload occurs. A pair of test terminals, test+/test- can be used to determine supply current by connecting them to an external voltmeter.

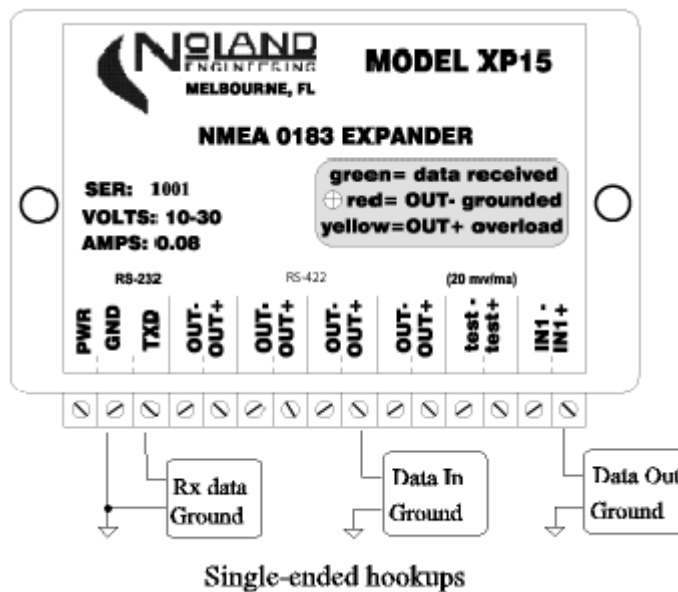
**TYPICAL INSTALLATION:** The XP15 accepts one NMEA talker input, such as a GPS. The input signal is split into 5 outputs, four RS-422 and one RS-232. Multiple listeners can be connected to each output as long as the yellow LED does not appear. When connecting NMEA listeners to the XP15 outputs, observe the following:

*Only connect the RS-422 outputs to RS-422 or opto-isolated listeners. If any output (OUT-) is connected to a single-ended (grounded)*



*listener, the red LED will turn on indicating an output overload. In such cases, listeners with their (-) input grounded such as PC's, should connect the RS-232 output (TXD) to the listener's "Data In" or leave the OUT- disconnected from those listeners. (See figure next page.)*

An LED is included on the XP15 to aid in installation and troubleshooting. Whenever input data is detected, the LED will momentarily flash green. A yellow LED usually occurs when too many outputs are connected. The LED will turn red whenever the DC current draw exceeds 80 milliamps. This can occur if any OUT- terminal is grounded. Listeners should be connected to the

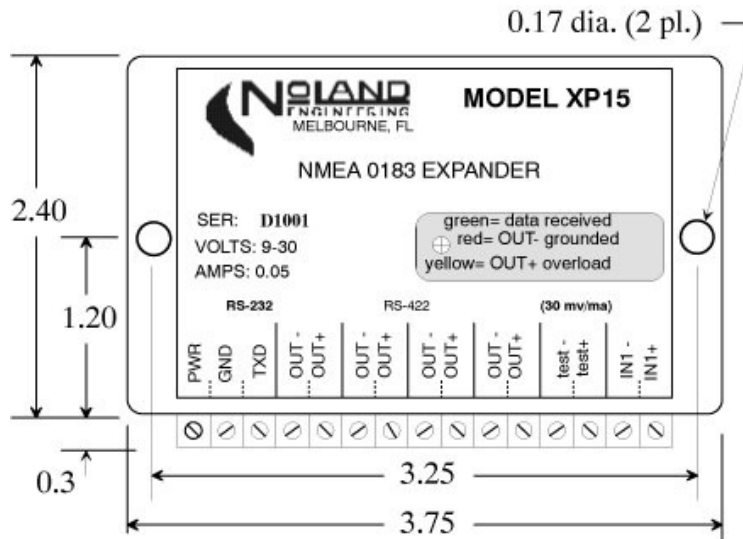


XP15 outputs one at a time, while observing that the LED never turns red. If one or more of the listeners causes the red LED to turn on, it is probably because that minus (-) listener input is actually grounded. In this case, you can either use the RS-232 output to drive that listener or leave the minus (-) input to that listener disconnected from the XP15. (See figure above.)

The **test+ / test-** terminals are useful for measuring load current. Connect a voltmeter across these terminals and measure the voltage. The scale factor is 20 mv/ma (0.05a/v), so that a 1.0 volt (1000mv) reading indicates 50ma of load current. When the reading is approximately 1.6v, the red LED will illuminate.

## Specifications

Supply Voltage	10-30 Vdc
Input Impedance	>1K ohm
RS-422 Outputs	2.5V typ. into 150 ohms
RS-232 Output	+/- 8V @ 10ma typ.
Data Rate	38,400 baud max.
Overload Indicator	>80ma (V_test = 1.6 volts)
Operating Temp (degC)	0 – 50
Humidity range	0 – 100% (non-condensing)
Size, Weight	3.75 x 2.75 x 1.0 in., 4 oz.



**NoLand Engineering Inc**  
**728 E Lincoln Ave**  
**Suite 3**  
**Melbourne, FL 32901**

**Tel: (321) 951 -7329 Fax: (321) 951-8773**  
**<http://www.nolandeng.com>**  
**email: [info@nolandeng.com](mailto:info@nolandeng.com)**