Innovative Solutions in Engineering

BBG-NMEA-SMux

NMEA Multiplexer

Description

The BBG-NMEA-SMux is a stand-alone RS-232/422 interface used to combine up to seven (7) NMEA-0183 serial input channels into one (1) NMEA-0183 serial output channel.

The input and output data rates are customizable from 4800 to 38400 bits per second (bps). Status LEDs show input activity and system status information.

Applications

- Computer Systems
- Navigation Systems
- Industrial Processes
- Meteorology Instruments
- Many Others

Features

- +24 VDC Power Input
- Seven Serial RS-232/422 Inputs
- One Serial RS-232/422 Output
- Optically Isolated Inputs
- Customizable Baud Rates
- Input activity and System Status LEDs

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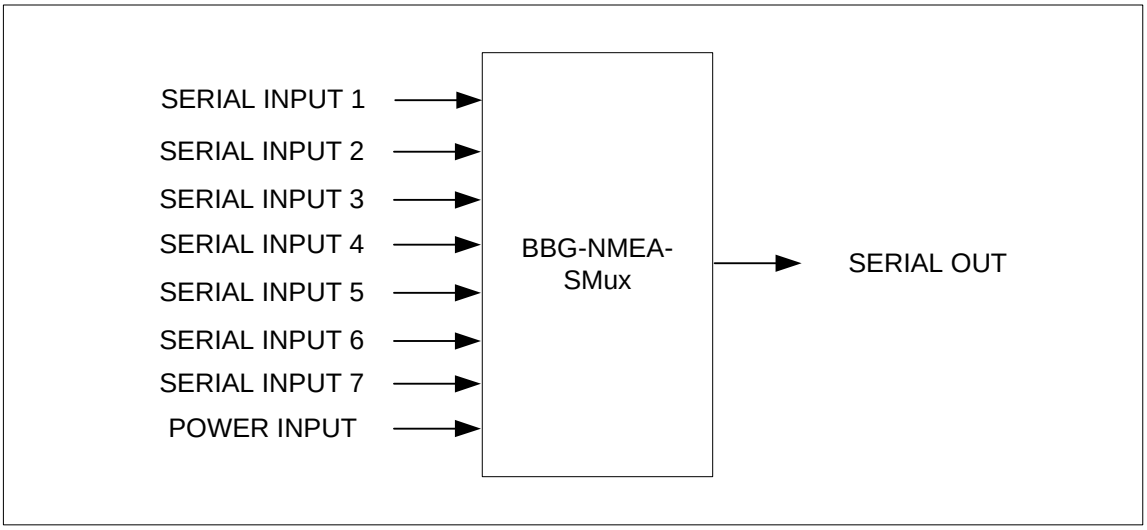
BBG-NMEA-SMux Product Specifications

Chart



The BBG-NMEA-SMux operates on +24 VDC input power and performs serial combining of up to seven (7) NMEA-0183 serial inputs into one NMEA-0183 serial output. Input and output baud rates are switch selectable and status LEDs show input activity and system status

Technical Specifications

Parameter	Value	Units
Input		
Power	24	Volts DC
	100	Miliamps
Input (7 channels)		
Serial Message	NMEA-0183	
Serial Protocol	RS-232/422	
Output (1 channel)		
Serial Message	NMEA-0183	
Serial Protocol	RS-232/422	
Temperature Range		
Operating	-25 to +70	°C
Storage	-65 to +125	°C
Dimensions	TBD	In
	TBD	Cm

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CONNECTOR LIST

Inputs and outputs are available on terminal block connectors provided with the BBG-NMEA-SMux. Inputs and outputs are listed below:

I/O CONNECTOR TYPE: Terminal Blocks
CONNECTOR MATE: Ferrules

BBG-NMEA-SMUX Inputs:

Signal	Connector
+24 Vdc (INPUT)	TB1 – 1
24 Vdc RETURN (INPUT)	TB1 – 2
TXD422B (OUTPUT)	TB1 – 3
TXD422A (OUTPUT)	TB1 – 4
Serial Input 7- (INPUT)	TB1 – 7
Serial Input 7+ (INPUT)	TB1 – 8
Serial Input 6- (INPUT)	TB1 – 9
Serial Input 6+ (INPUT)	TB1 – 10
Serial Input 5- (INPUT)	TB1 – 11
Serial Input 5+ (INPUT)	TB1 – 12
Serial Input 4- (INPUT)	TB1 – 13
Serial Input 4+ (INPUT)	TB1 – 14
Serial Input 3- (INPUT)	TB1 – 15
Serial Input 3+ (INPUT)	TB1 – 16
Serial Input 2- (INPUT)	TB1 – 17
Serial Input 2+ (INPUT)	TB1 – 18
Serial Input 1- (INPUT)	TB1 – 19
Serial Input 1+ (INPUT)	TB1 – 20

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Operating Instructions

When ordering the BBG-NMEA-SMux, the default data rate is set to all inputs and output at 4800 bits per second. If a different data rate is desired for any input or output, it can be changed at the time of order. After the order is fulfilled, the data rate can only be changed through a firmware change, necessitating a return of the multiplexor.

To install, connect the appropriate connections on the chart above. When the multiplexor is first energized, a short self test is initiated. During this short self-test, all status lights are on and the message "$PPBBG,MUX" followed by a version number is sent to the output channel. This short self-test takes approximately 0.5 seconds to complete.

In the event that data does not appear to be passing through the multiplexor, verify the polarity of the inputs and output. In order to minimize the transmission of noise, the multiplexor waits for a valid NMEA message before transmitting. In the event that connector polarity is reversed, no valid NMEA messages will be received by the multiplexor.

Due to the differing data rates available, it is possible to have more data coming into the multiplexor than can be sent out, causing a data overflow. In the event of a data overflow the red status light will illuminate, indicating an overflow condition. In this condition, some NMEA sentences will be discarded in order to ensure that data gets through the output. The decision algorithm prioritizes data streams in the order of input number (input 1 has a higher priority than input 2, etc.). It is recommended that sources with a higher data rate be connected to numerically higher data inputs, in order to ensure that the output is not monopolized by one source.

If there is a temporary data overflow, the red light will remain illuminated for a short period of time, even though no data is getting discarded. This is to inform the user that an overflow has occurred, and some data has been discarded.

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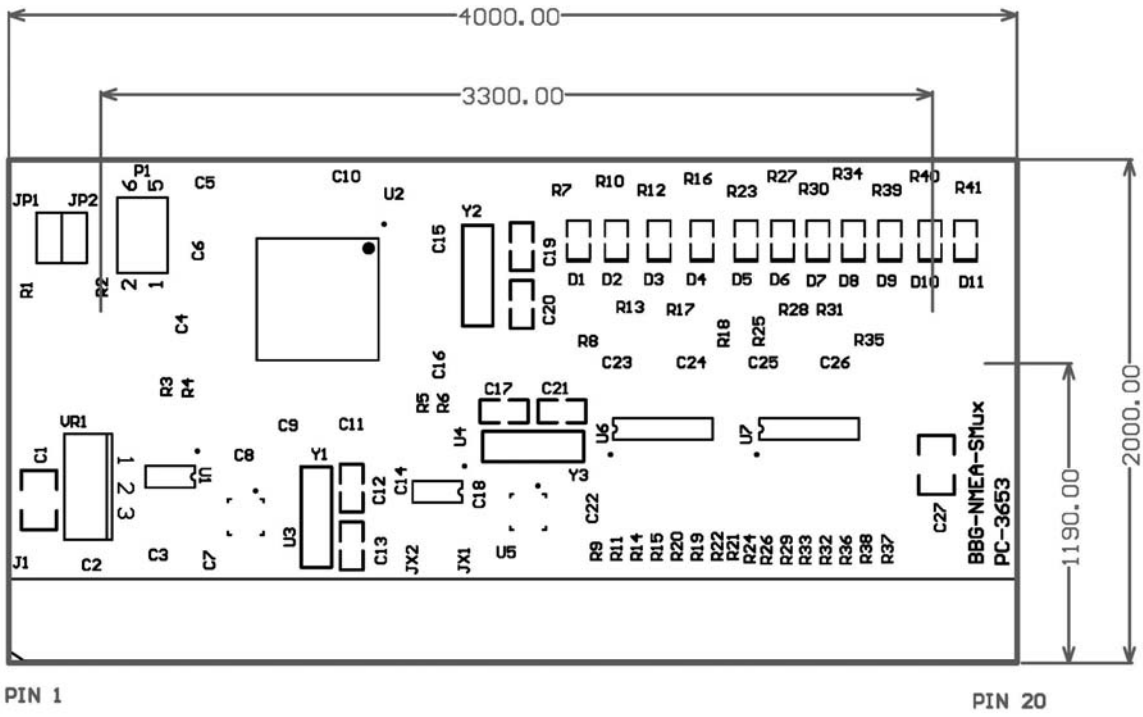

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