MiniPlex-2S

Advanced NMEA multiplexer

The MiniPlex-2S is an advanced NMEA multi-plexer, combining data from up to four navigation instruments into two NMEA outputs and an RS–232 port. It also supports AIS and other high speed NMEA devices up to 57600 Baud.

Two NMEA outputs (talker ports) allow distribution of the NMEA data to up to eight instruments.

The MiniPlex-2S can be connected to a computer through the galvanically isolated RS-232 interface for computerized navigation. Stand-alone operation is also possible, in which case the RS-232 interface is only used to configure the multiplexer.

The MiniPlex-2S has a rich set of features and configuration options, enabling the user to tackle almost any NMEA bottleneck or interface problem. The supplied Windows utility MPX-Config allows full configuration of the multiplexer and monitoring of NMEA data passing through the multiplexer.

Major advantages:
- Data from multiple instruments is available as one single stream on one single cable. This reduces wiring cost.
- Seamless integration into an existing Raymarine Seatalk® network.
- All inputs are galvanically isolated, eliminating ground loops between instruments.
- Full galvanic isolation on the RS-232 port, eliminating ground loops between multiplexer and computer which are often on separate power grids.
- The MiniPlex allows you to fully control the source, the destination and the rate of each individual NMEA sentence by its powerful sentence filtering and routing facility.
- Automatic switching between computer navigation and GPS based navigation.
- Automatic switching between primary and secondary instruments in case of failure or invalid data.

FEATURES

NMEA routing: NMEA data can be routed from any input to any output. A default route can be set as well as specific routing rules for individual NMEA sentences.

Computer data can be routed to any NMEA output, to be merged with other NMEA data or to override this data. This enables automatic switching between computer based navigation and GPS/instrument based navigation.

NMEA filtering: A flexible NMEA filter can be configured to pass or block specific sentences from each input channel. This greatly reduces the chance of an overflow and the resulting loss of data. Many GPS receivers for instance, transmit an abundance of sentences every second, accounting for 85% of the available bandwidth of the NMEA channel. By blocking unwanted or unnecessary sentences, bandwidth is preserved for other instruments.

Flexible communication speed: The communication speed of all inputs and outputs can be set from 4800 to 57600 Baud to allow connection of devices that operate at non-standard (4800 Baud) communication speeds like integrated weather sensors, gyrocompasses or AIS equipment.

SeaTalk® conversion: When the SeaTalk -> NMEA option is enabled, one of the NMEA inputs becomes a SeaTalk® compatible input, offering conversion of the most common SeaTalk datagrams on a Raymarine® network into NMEA sentences. This data is combined with NMEA data received on the other inputs. When Priority is enabled, SeaTalk data can be assigned highest or lowest priority.

Real-Time forwarding: Gyro- and fluxgate compasses produce NMEA sentences at a high rate (10 sentences/second or more). This can lead to a buffer overflow in the multiplexer. Although this overflow is handled properly without data corruption, it will lead to a delay of NMEA sentences of up to 20 seconds in extreme situations. This produces a severe problem for autopilots, which cannot make proper course corrections when their heading feedback is delayed for 20 seconds. The Real-Time option prevents this delay by bypassing the buffer of that specific channel and forwarding the data immediately to the multiplexer's NMEA output. As a result, the heading is never delayed more than 0.2 to 0.5 seconds, depending on the amount of other NMEA sentences passing through the multiplexer.

Heading conversion: This option converts a Magnetic Heading sentence (HDG) into a True Heading sentence (HDT). If the originating magnetic heading sentence contains a magnetic variation, it is used to calculate the true heading before conversion. This feature is useful for certain equipment like VDR's which need a true heading input, while the only available heading source is a fluxgate, delivering a magnetic heading.
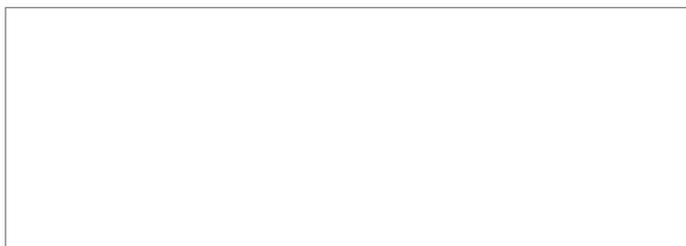
Priority: With Priority enabled, similar NMEA sentences on different inputs are only passed from the input with the highest priority. The RS-232 port has the highest priority, followed by inputs 1 to 4, in descending order. When for instance two GPS receivers are connected to inputs 1 and 2, and both transmit the same type of NMEA sentences, only those received on input 1 are passed. An adjustable time-out ensures that similar sentences from the GPS at input 2 are passed when the GPS at input 1 stops sending these sentences. Optionally, GPS sentences are checked for a valid status field, causing automatic switchover when the primary GPS looses satellite signal.

Channel information: When this feature is switched on, the multiplexer will transmit a proprietary NMEA sentence indicating on which input channel the following NMEA sentence is received. Optionally, the multiplexer can append NMEA V4.0 TAG block to each NMEA sentence to indicate its originating input.

Talker ID substitution: It changes the talker ID of incoming sentences. The talker ID can be specified for each input channel. This option is useful for software or instruments that expect a specific talker ID or to distinguish between sentences from two similar instruments.

TECHNICAL SPECIFICATIONS

Supply voltage:	8-35VDC, secured against reversed polarity.
Current consumption:	50mA (100mA max. with fully loaded talker ports)
Computer interface:	RS-232, galvanically isolated
Inputs:	4 x NMEA 0183/RS-422, galvanically isolated
Input resistance:	> 800 Ohm
Outputs:	2 x NMEA 0183/RS-422
Buffers:	5 buffers of 1024 characters (4 x NMEA, 1 x RS-232)
Filter list size:	**50 sentence types**
Priority list size:	**50 sentence types**
Speed NMEA In 1-3:	4800 - 57600 baud
Speed NMEA In 4/Out 1:	4800 - 57600 baud
Speed NMEA Out 2:	4800 - 115200 baud
Speed RS-232 serial port:	4800 - 115200 baud
Dimensions:	138 x 62 x 30mm

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