

NM-AD10

NMEA-0183 to Furuno AD10 Converter

User Guide

V1.00

Introduction

The NM-AD10PC is a NMEA-0183 to Furuno AD-10 protocol converter. The NM-AD10PC can be used to interface any gyrocompass or heading sensor device capable of producing NMEA-0183 sentences with all the Furuno instruments that require AD-10 signals as input to acquire the heading information.

Operation

The NM-AD10PC acquires the NMEA-0183 sentences from the InA port and converts them to Furuno AD-10 protocol which is a two line synchronous serial signal consisting of a clock/shift line and a data line. The AD-10 output frequency is user selectable via dip switch setting (SW1-1, see figure 2), and can be 5Hz or 40Hz.

The user can also select the NMEA-0183 source sentence that will be converted to Furuno AD-10 via the same dip switch array. The NMEA-0183 input sentence should be one of the \$--HDG, \$--HDM, \$--HDT, \$--VHW and \$--RMC. If a multiplexed input is applied containing more NMEA sentences, then only the selected sentence will be processed and converted to Furuno AD-10 format. The current configuration of the dip switches is visually represented from the light emission diodes B0, B1 and B2.

A full table for the configuration of the dip switch and the LED status in the front panel of the NM-AD10PC is shown at tables 1 and 2.

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The NM-AD10PC can be connected as shown in the next figure 1:

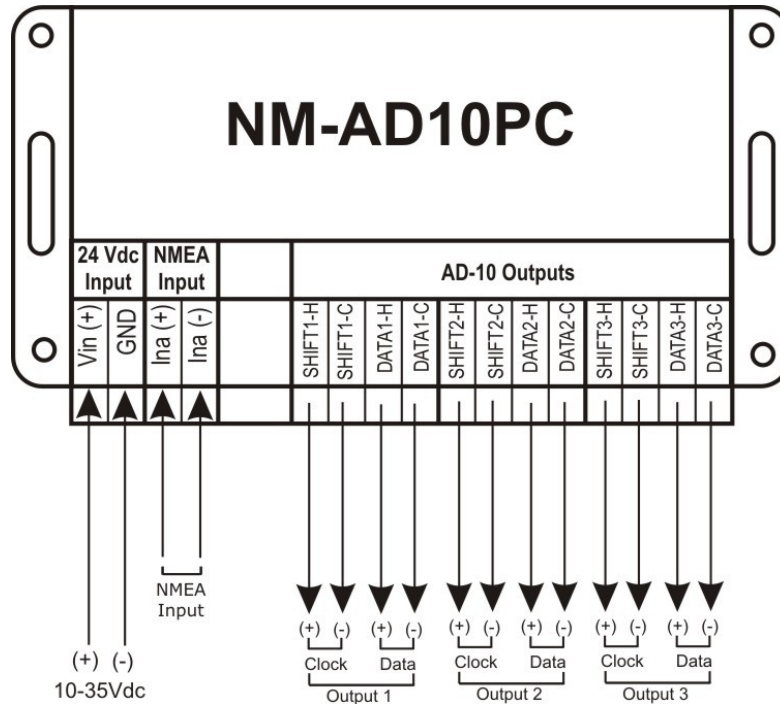


figure (1): NM-AD10PC connection diagram

Programming

The selected input sentence can be configured into the NM-AD10PC using the following procedure:

1. Power off the NM-AD10PC
2. Set the dip switches according to the table (1) to select the NMEA-0183 sentence to be converted
3. Power on the NM-AD10PC
4. The status of the LED B0-B2 should be according to the dip switch setup (see table 2). If B0-B2 are flashing in a 0.5 Hz frequency then an incorrect dip switch setup has been applied and the procedure should be repeated.
5. The configuration of the AD-10 transmit frequency can be selected via SW1-1 (see table 1) and can be performed at any time.

Dip Switch Settings

SW1-1	SW1-2	SW1-3	SW1-4	Functionality
OFF	State Independent			Enables Furuno AD-10 at 5Hz
ON				Enables Furuno AD-10 at 40Hz
State Independent	OFF	OFF	OFF	Not applicable
	OFF	OFF	ON	Enables "\$--HDT" to Furuno AD-10 conversion
	OFF	ON	OFF	Enables "\$--HDG" to Furuno AD-10 conversion
	OFF	ON	ON	Enables "\$--HDM" to Furuno AD-10 conversion
	ON	OFF	OFF	Enables "\$--VHW" to Furuno AD-10 conversion
	ON	OFF	ON	Enables "\$--RMC" to Furuno AD-10 conversion
	ON	ON	OFF	Not applicable
ON	ON	ON	Not applicable	

Table (1): NM-AD10PC Configuration Table

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LED Indicator sequence

B2	B1	B0	Description
OFF	OFF	ON	"\$--HDT" to Furuno AD-10 conversion
OFF	ON	OFF	"\$--HDG" to Furuno AD-10 conversion
OFF	ON	ON	"\$--HDM" to Furuno AD-10 conversion
ON	OFF	OFF	"\$--VHW" to Furuno AD-10 conversion
ON	OFF	ON	"\$--RMC" to Furuno AD-10 conversion
Flashing 0.5 Hz			Dip switches SW1-2 to SW1-4 in a not applicable state

Table (2): LED Indicator status

Power Supply

The NM-251A can be powered within the range of 10-35 VDC. The nominal voltage of 24 Vdc is advised for powering the device in normal operation. Power input port has a protection for incorrect polarity connection of the supplying voltage.

Printed Circuit Board composite layout

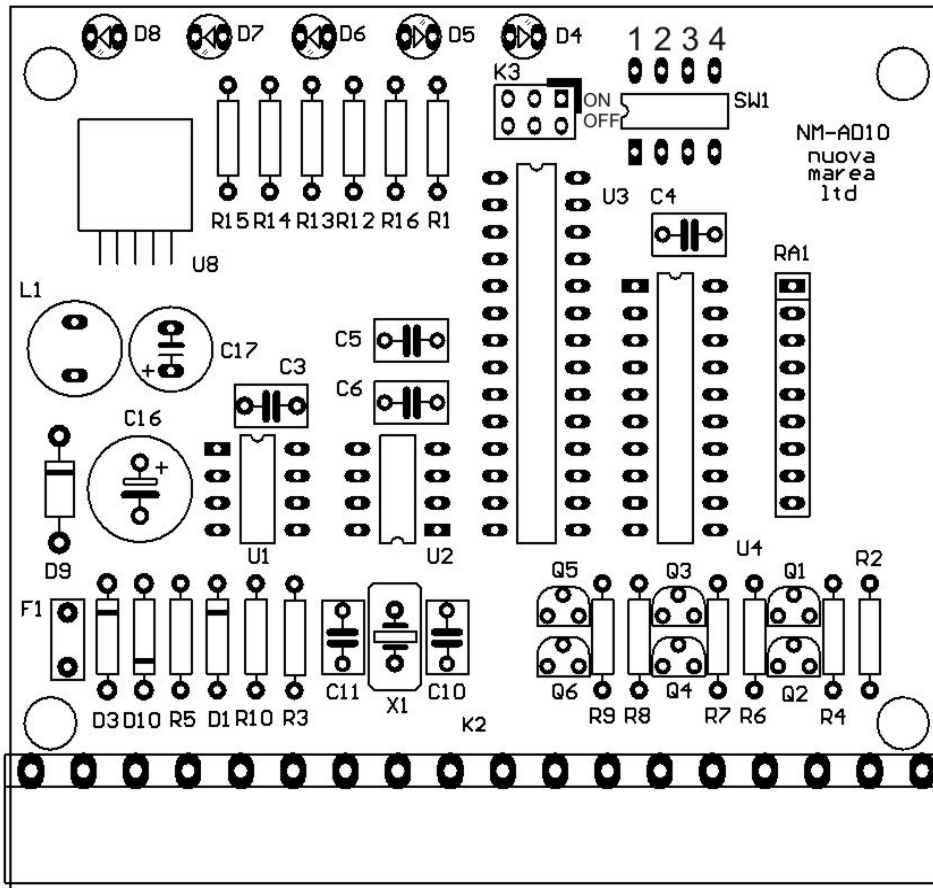


Figure 2: Composite layout of NM-AD10PC printed circuit board

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Specifications

Supply Voltage	9 to 35 Vdc
Power Supply Protection	PTC Resettable Fuse Vmax: 60V, Imax: 40A, Ihold: 0,25A (23°C), Itrip:0,5A (23°C), Max time to trip (23°C): 2,2sec for 1,25A
Current Consumption	50mA in idle state/ 150mA in full output mode
Inputs	1 x NMEA-0183, optically isolated Common Mode Rejection: 10kV/usec, Isolation: 480 Vrms
Input Resistance	1 KOhm
Outputs	3 x Furuno AD10
Speed for NMEA input	4.800/8/N/1
Indicators	B0-B2: visual indication for the current setup configuration
Dimensions	Width = 110mm/134,80 mm Depth = 82 mm Height = 43 mm
Housing	Styrene

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