NAVITRON SYSTEMS LTD Heading & Speed Data Interfaces

Designed and developed by Navitron Systems Ltd to provide heading data/signal coupling between otherwise incompatible equipment, the Navitron Heading Data Interface range offers simple to install solutions to many heading data and speed log communication problems.

Three models of Heading Data Interface (HDI) are available to convert heading signals sourced from proprietary types of gyro, magnetic and electronic compass to the signal format(s) required to 'handshake' with a wide range of end users such as Radars, Trackplotters, Autopilots, GPS Receivers and Heading Repeaters. Additionally, two of the models will accept speed log pulse information for conversion to combined NMEA heading & Speed data output (VHW sentence) for use by ECDIS, AIS and VDR systems etc.



Simultaneous Outputs: -Heading: -

Navitron Autopilot Data Navitron Serial Data

Furuno (5Hz or 40Hz)

3, 6, 12, 24 Step/degree

Heading & Speed: -

NMEA 0183 (VHW)@ 1Hz & 3Hz with NMEA 0183 (HDT)@ 10Hz or

NMEA 0183 (VHW)@ 1Hz & 3Hz with NMEA 0183 (HDM & HDG) @ 6Hz

Model NT920 HDI ~ typically for use with electronic / GPS compass types and/or pulse output speed logs.







 NAVITRON SYSTEMS LTD
 (Registered in England 2607869)

 Osborn House, 25E Brockhampton Lane, Havant, Hampshire PO9 1JT

 TEL:
 (UK)
 023 9249 8740
 FAX:
 (UK)
 023 9249 8783

 (INT)
 +44
 23 9249 8740
 (INT)
 +44
 23 9249 8783

 E-mail:
 sales @navitron.co.uk
 Web: www.navitron.co.uk

NAVITRON SYSTEMS LTD NT921HDI & NT922HDI Heading Data Interfaces

The NT921HDI is available in two forms to convert Sin/Cos Heading signals received from proprietary compasses / fluxgate devices etc. to standard NMEA heading data. The resultant serial data accords with IEC 61162/1 and IEC 61162/2 (as preferred) and can be used as a heading input to a Navitron Autopilot System or for inputs to other proprietary equipment such as radar (stabilisation) or ECDIS etc.

Туре	NT921HDI	Type NT921HDI/1:-					
Input Signal:-	Sin / Cosine (0 - 5Vdc range)	This is the simpler form of interface which can be connected					
		supplies available from the Autopilot Control Unit as it's power					
		The PIC processor intelligent NT921HDI then decodes applied Sin/Cos Heading signal and converts the input signal to NMEA					
		0183 serial output data which is installation selectable for 4800 or 38400 baud and update rates of 1Hz or 10Hz as required.					
Output Signal:-		NT921HDI/2:-					
Single channel NM Installation Selectable 1Hz, 10Hz or 20Hz up	EA 0183 Heading Data. e 4800 / 38400 baud with odate rate combinations.	This is a stand alone version of the Sin/Cos to NMEA converter and is suitable for direct connection to 11-40Vdc vessel power supply since voltage regulation is included in the NT921HDI/2 (Type 2)					
		The single channel NMEA 0183 Heading data output signal is onto isolated to eradicate common mode problems and provides					
		installation selectable update rates of 1Hz, 10Hz or 20Hz dependent upon the output baud rate selected (4800 or 38400).					
Type	NT922HDI	NT922HDI-					
Input Signal:-	NMEA 0183 Heading data @ 4800, 9600, 19200 and 38400 baud	The NT922HDI provides conversion functions from NMEA Heading data to 5Vp/p Step by Step and from single channel NMEA Heading data to dual channel opto isolated NMEA outputs which are independently selectable to provide both baud rate and update rate conversions.					
		Suitable for stand alone 11-40Vdc power supply operation, the NT922HDI can be used in buffered NMEA to step repeater applications etc. and the baud rate conversion function provides a simple solution to many interfacing requirements involving equipment from different systems operating at different baud rates.					
Output Signal:- Installation selectab steps/degree (5Vp/p)	le 3, 6, 12 and 24 & isolated dual channel	The NT922HDI NMEA serial data outputs are available in two sentence types (\$XXHDT or \$XXHDG) which are derived and reliant upon the input data received.					
NMEA Heading data 38400 baud with upd 10, 20 & 40Hz	@ 4800, 9600, 19200 or ate rate combinations 1, 8,	The outputs (opto isolated) can be connected to external "listeners" in RS422, RS232 and standard NMEA connection formats.					
B B B B B B B B B B B B B B B B B B B		NAVITRON SYSTEMS LTD (Registered in England No. 2607869) Osborn House, 25E Brockhampton Lane, Havant, Hampshire PO9 1JT TEL: (UK) 023 9249 8740 FAX: (UK) 023 9249 8783 (INT) +44 23 9249 8740 (INT) +44 23 9249 8783 E-mail: sales@navitron.co.uk Web: www.navitron.co.uk					

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NT921HDI / NT922 HDI Outline Specifications

NT921 HDI /1 & NT921 HDI /2 Tech Specs] [NT922 HDI Tech Specs			
						ר ר				
NT921 HD	01 /1 In	outs:-	NT921	HDI /2 I	nputs:-		NT922 HDI Inputs:-			
Supply	No re	m. 12V g from	Supply Voltage	, 9	11-40Vdc		Supply Voltage	11-40Vdc		
Power Autopilot		Power Consump	Power 1.0W			Power 1.0W Consumption				
Consumption (Excluding 1.0W						NMEA 0183 Heading Data				
Compass)	Compass)		Sin/Co	Sin/Cos Sig/Ref Levels			\$XXHDT	All sentences		
			Sin Sig V	Sin Sig Volts $\pm 5V \text{ or } \pm 12V$			\$XXHDM	acceptable at		
Sin/Cos Si	ia/Rof I	ovols		$\begin{array}{c c} Cos Sig Volts \\ \pm 5V \text{ or } \pm 12V \\ \hline Cos Sig Volts \\ \hline $			\$XXHCC	4800, 9600, 10200, 28400 hd		
Sin Sig Volts		-5V/dc		kei	2.5V00		\$XXHDG	19200, 36400 bu		
Cos Sig	0	-0 v u c								
Volts	0	-5Vdc					NT922 HDI Outputs:-			
Sin/Cos Ref	2	.5Vdc	NT921	HDI /2 O	utputs:-					
							NMEA 0183	3 Heading Data		
NT921 HD	/1 Ou	touts:-	Proprieta	ry Compa	ass Supply		Sentence	\$XXHDT		
			Voltage	2	12Vdc		Types	\$XXHDG		
			Max Curr	ent	20mA		Typeo	Independently		
Proprietary C	ompas	s Supply						Selectable @		
Voltage Nom. 12V						Baud Rates	4800, 9600,			
Max Current	1	00 mA	NMEA 0	NMEA 0183 Heading Data				19200 & 38400		
Max Ourient	•		Sentence	Baud	Update			Daug		
			Туре	Rates	Rates		Undate	Independently Selectable @ 1		
NMEA 0183	Headi	ng Data		1800	1Hz,		Rates	8 10 20 40Hz		
Sentence I	Baud	Update		4000	10Hz		Trates	combinations		
Type F	Rates	Rates	\$XXHDG		1Hz,			combinations		
	4800	1Hz,		38400 10Hz, 20Hz			Step by Step			
\$XXHDG	0.400	10HZ 1Hz,			20112		Step Voltage Level	+5Vdc		
3	00400	10HZ, 20Hz					Step Output	3, 6, 12 & 24		
	20112		Operatir	Operating 0 - 60°C			(selectable)	steps/degree		
Operating			Тетр Ка	Temp Range			Z out	330 Ω		
Temp Pange	0	- 60°C								
Temp Range			Compo				Operating	0 - 60°C		
Compass Safe 0.4m		Safe Dista	Safe Distance 0.4m			Temp Range	;			
Distance						Compass	0.4m			
							Safe Distance			
Mechanical Data		Me	Mechanical Data			Mechanical Data				
Length	1	45mm	Length	Length 145mm			Length 145mm			
Height	4	5mm	Height		45mm		Height	45mm		
Width	9	95mm	Width		95mm		Width	95mm		
Weight 0.5kg		Weigh	t	0.5kg		Weight	0.5kg			

NAVITRON SYSTEMS LTD NT921HDI & NT922HDI Heading Data Interfaces

The NT921HDI is available in two forms to convert Sin/Cos Heading signals received from proprietary compasses / fluxgate devices etc. to standard NMEA heading data. The resultant serial data accords with IEC 61162/1 and IEC 61162/2 (as preferred) and can be used as a heading input to a Navitron Autopilot System or for inputs to other proprietary equipment such as radar (stabilisation) or ECDIS etc.

Туре	NT921HDI	Type NT921HDI/1:-					
Input Signal:-	Sin / Cosine (0 - 5Vdc range)	This is the simpler form of interface which can be connected					
		supplies available from the Autopilot Control Unit as it's power					
		The PIC processor intelligent NT921HDI then decodes applied Sin/Cos Heading signal and converts the input signal to NMEA					
		0183 serial output data which is installation selectable for 4800 or 38400 baud and update rates of 1Hz or 10Hz as required.					
Output Signal:-		NT921HDI/2:-					
Single channel NM Installation Selectable 1Hz, 10Hz or 20Hz up	EA 0183 Heading Data. e 4800 / 38400 baud with odate rate combinations.	This is a stand alone version of the Sin/Cos to NMEA converter and is suitable for direct connection to 11-40Vdc vessel power supply since voltage regulation is included in the NT921HDI/2 (Type 2)					
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Type	NT922HDI	NT922HDI-					
Input Signal:-	NMEA 0183 Heading data @ 4800, 9600, 19200 and 38400 baud	The NT922HDI provides conversion functions from NMEA Heading data to 5Vp/p Step by Step and from single channel NMEA Heading data to dual channel opto isolated NMEA outputs which are independently selectable to provide both baud rate and update rate conversions.					
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Output Signal:- Installation selectab steps/degree (5Vp/p)	le 3, 6, 12 and 24 & isolated dual channel	The NT922HDI NMEA serial data outputs are available in two sentence types (\$XXHDT or \$XXHDG) which are derived and reliant upon the input data received.					
NMEA Heading data 38400 baud with upd 10, 20 & 40Hz	@ 4800, 9600, 19200 or ate rate combinations 1, 8,	The outputs (opto isolated) can be connected to external "listeners" in RS422, RS232 and standard NMEA connection formats.					
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Consumption (Excluding 1.0W						NMEA 0183 Heading Data				
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Sin/Cos Si	ia/Rof I	ovols		$\begin{array}{c c} Cos Sig Volts \\ \pm 5V \text{ or } \pm 12V \\ \hline Cos Sig Volts \\ \hline $			\$XXHCC	4800, 9600, 10200, 28400 hd		
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							NMEA 0183	3 Heading Data		
NT921 HD	/1 Ou	touts:-	Proprieta	ry Compa	ass Supply		Sentence	\$XXHDT		
			Voltage	2	12Vdc		Types	\$XXHDG		
			Max Curr	ent	20mA		Typeo	Independently		
Proprietary C	ompas	s Supply						Selectable @		
Voltage Nom. 12V						Baud Rates	4800, 9600,			
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Simultaneous Outputs: -Heading: -

Navitron Autopilot Data Navitron Serial Data

Furuno (5Hz or 40Hz)

3, 6, 12, 24 Step/degree

Heading & Speed: -

NMEA 0183 (VHW)@ 1Hz & 3Hz with NMEA 0183 (HDT)@ 10Hz or

NMEA 0183 (VHW)@ 1Hz & 3Hz with NMEA 0183 (HDM & HDG) @ 6Hz

Model NT920 HDI ~ typically for use with electronic / GPS compass types and/or pulse output speed logs.







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 +44
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 +44
 23 9249 8783

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Navitron Systems Ltd

Heading Data Interface Type NT990HDI

BSH (Germany) type approved for AIS, ECDIS, Radar and Heading Repeater interfacing, the NT990HDI (Heading Data Interface) will convert virtually any Synchro or Step by Step heading input signal to heading data transmitted on 1 (NT990HDI/1) or 2 (NT990HDI/2) isolated NMEA 0183 output channels. The output channels may be independently set for IEC 61162/1 (4800 baud) or IEC 61162/2 (38400 baud).

A speed log giving 200 or 400 ppNm may also be connected to the NT990HDI to provide NMEA 0183 speed information to proprietary systems.

All inputs to the NT990HDI are Opto-Isolated to eliminate common mode and loading problems.

The NMEA 0183 output sentences may be set for heading only (\$HEHDT), heading and Rate Of Turn (\$HEROT), heading and speed (\$VDVHW) or heading, rate of turn and speed.

Heading information is permanently displayed on a 4-digit LED display with variable intensity for night viewing whilst built in alarm functions triggered by internal monitors warn of heading input or NMEA output failure.



An internal power-monitoring relay provides a volt free normally open (N.O.) or normally closed (N.C.) contact to warn of power supply failure. Contact rating 1A@30Vdc

Suitable for 11-40Vdc power supply connection, the NT990HDI may be powered up via the unit mounted ON/OFF keypad or from a remote location via remote power up terminals also provided.