Whilst the NT921G and NT990G autopilots are similar in appearance and apparently identical in terms of the parameters specified below, it should be noted that the software structures differ significantly to reflect the steering and response characteristics of vessels up to approximately 2000 grt (NT921G) compared with larger vessels from approximately 2000 grt upwards (NT990G). Certification Standards: -Russian Martime Register of Shipping (R.M.R.S) and Morsviasputnik Type Approved in

accordance with ISO 11674 & IMO A342 (IX) as amended by MSC64/67 Annex 3. Autopilot Input / Output Specifications

Outputs: -

Selectable @

1Hz, 11Hz or 22Hz

NMEA 0183 Heading Data (Isolated RS422) 2.5W (@24Vdc) Update Rate

11-40Vdc

8.1W (@24Vdc)

Inputs: -

Supply Voltage Range

Power Consumption

Illumination Max

Illumination Max	8.1W (@24V	ac)		<u> </u>		
				Hz	Mag	Gyro
Mag Heading Input Ports: -				HCHCC		
mag ricading input rolts		Sentence			UEUDT	
Navitron Heading		Coil type		1	HCHDG	HEHDT
Sensor Coil mounted	Coil type			•	APHCC	AGHDT
above or below	HSC1 or HS	C2	(Mag/Gyro		APHDG	
existing Mag compass			versus			UEUDT
			Update Rate)	11	HCHDM	HEHDT
Resolution	0.25°			• •	HCHDG	AGHDT
				22	HCHDM	HEHDT
NIMEA 0402 Useding	VV LIDM	25U-	Decelution			
NMEA 0183 Heading	XX HDM	25Hz	Resolution		0.1°	
Sentence from	XX HDG	16Hz				
Electronic Compass	XX HCC	28Hz	Furuno	He	ading Forma	t: -
(Priority and max update rate as shown)		25Hz				
		ZUNZ	Update Rate		Selectable @	
Resolution	0.1°		<u> </u>		5Hz or 40Hz	
					Selecta	ble @
Gyro Heading Input Ports: -		Resolution		0.166° d	_	
Isolated 1:1 Synchro	I		Signal Amplitu	de	de Selectable @	
(if available in Gyro)	from Autopi	lot			5Vdc or 12Vdc	
Resolution	0.25°					
	TI TI		Step by	Ster	Heading Da	ıta· -
NIMEA 0400 H "	VVUDT	0511	Ctop by	-101		
NMEA 0183 Heading	XX HDT	25Hz	Steps per degr	ee	Selecta	_
Sentence from Gyro or	XX HDM	25Hz	Stope per degi		3, 6, 12	or 24
optional NT925HDI	XX HDG	16Hz	Signal Amplitu	de	5Vo	dc
(Priority and max			J.g.iai Ampiita		340	
update rate as shown)	XX HCC	28Hz				
Resolution	0.1°		Navitron Cust	om	Serial Headii	ng Data: -
	TI TI		(to Navitr	on [Digital Repea	iters)
Faller Un D	to /Minimum.	1	(10,110,110		.g.s	
	te (Minimum): -					
All Heading Input	30° / Sec		Navitron Se	rial	Input/Output	t Data: -
Types			(to / from Navitron Bowtruster Interface			
			and Analogue Steering Interface options)			
Cross Track F	rror Signal Input		3			,
I		use)				
(from GPS/Plotter etc. for Track mode use)		Colid State Colomaid Coultable				
XX APA		Solid State Solenoid Switching: -				
NMEA 0183	XXAPB	XXAPB			Selecta	_
Sentence types	XXRMB		Polarity May Pating		Common +VE/-VE	
					E A /44 /	10//45/
	VV VTE		May Dating			
	XX XTE		Max Rating		5A (11-4	+0 v u c)
NMEA 0180	XX XTE (CTE Only	')	Max Rating		5A (11-2	40 V (LC)
)		anel	Alarms: -	+ovuc,
NMEA 0180	(CTE Only		Pa	anel	Alarms: -	
	(CTE Only		Pa Power Fail	anel	Alarms: - (int / ext	supply fail)
NMEA 0180	(CTE Only		Power Fail Steering Fail	anel	Alarms: - (int / ext	supply fail)
NMEA 0180 Operating Temp Range	(CTE Only		Pa Power Fail	anel	Alarms: - (int / ext	supply fail) r response)
NMEA 0180 Operating Temp Range Operator Cont	-20 to +60 °	C	Pa Power Fail Steering Fail Heading Input	anel	Alarms: - (int / ext : (no rudder (no hea	supply fail) r response) ading data)
NMEA 0180 Operating Temp Range Operator Cont	-20 to +60 ° rol & Selectors: -	C C	Paragraphy		Alarms: - (int / ext : (no rudder (no hea	supply fail) r response) ading data) Track data)
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder	-20 to +60 ° rol & Selectors: - Alarm Test/Cand	C C	Power Fail Steering Fail Heading Input Data Input Fail Off Course	(s	Alarms: - (int / ext : (no rudder (no hea	supply fail) r response) ading data) Track data) t exceeded)
NMEA 0180 Operating Temp Range Operator Cont	-20 to +60 ° rol & Selectors: -	C C	Paragraphy	(s	Alarms: - (int / ext : (no rudder (no hea	supply fail) r response) ading data) Track data) t exceeded)
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder	-20 to +60 ° rol & Selectors: - Alarm Test/Cand Autotrim On/Off Track On/Off	cel	Paragram Par	(s _l	Alarms: - (int / ext : (no rudder (no heat) (no pecified limit	supply fail) r response) ading data) Track data) t exceeded)
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit	-20 to +60 ° -20 t	cel	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote	(s _l	Alarms: - (int / ext = (no rudder (no hea (no pecified limit	supply fail) r response) ading data) Track data) t exceeded) T reached) n engaged)
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination	-20 to +60 ° -20 t	cel solution m level	Paragram Par	(s _l	Alarms: - (int / ext section (no rudder (no heat)) pecified limit/RO emote station	supply fail) r response) ading data) Track data) t exceeded) T reached) n engaged)
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit	-20 to +60 ° -20 t	cel solution m level	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote	(s _l	Alarms: - (int / ext section (no rudder (no heat)) pecified limit/RO emote station	supply fail) r response) ading data) Track data) t exceeded) T reached) n engaged)
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch	-20 to +60 ° -20 t	cel solution m level	Paragram Paragram Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test	(sp	Alarms: - (int / ext = (no rudder (no hea (no pecified limit ec'd limit/RO emote station (tests	supply fail) r response) ading data) Track data) t exceeded) T reached) n engaged) all alarms)
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination	-20 to +60 ° -20 t	cel solution m level	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test	(sp	Alarms: - (int / ext section (no rudder (no heat)) pecified limit/RO emote station (tests	supply fail) r response) ading data) Track data) cexceeded) T reached) n engaged) all alarms)
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch	-20 to +60 ° -20 t	cel solution m level	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width	(sp	Alarms: - (int / ext solution (no rudder (no heat)) pecified limit/RO emote station (tests) 921G/990G C	supply fail) r response) ading data) Track data) r exceeded) T reached) n engaged) all alarms) control Unit
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch	-20 to +60 ° -20 t	cel solution m level	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test	(sp	Alarms: - (int / ext section (no rudder (no heat)) pecified limit/RO emote station (tests	supply fail) r response) ading data) Track data) r exceeded) T reached) n engaged) all alarms) control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector	-20 to +60 ° -20 t	cel solution m level	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width	(sp	Alarms: - (int / ext solution (no head	supply fail) r response) ading data) Track data) r exceeded) T reached) n engaged) all alarms) control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S	-20 to +60 ° -20 t	cel solution m level	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height	(sp	Alarms: - (int / ext solution (no rudder (no heat)) pecified limit/RO emote station (tests) 921G/990G C	supply fail) r response) ading data) Track data) r exceeded) T reached) n engaged) all alarms) control Unit
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G	-20 to +60 ° -20 t	cel solution m level	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel	(sp	Alarms: - (int / ext solution (no heat (no pecified limit/RO) emote station (tests) 921G/990G C 297mr 176mr 110mr	supply fail) r response) ading data) Track data) r exceeded) r reached) n engaged) all alarms) control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S	-20 to +60 ° -20 t	cel solution m level	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind	(sp	Alarms: - (int / ext solution (no head	supply fail) r response) ading data) Track data) r exceeded) r reached) n engaged) all alarms) control Unit
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G	-20 to +60 ° -20 t	cel solution m level	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel	(sp	Alarms: - (int / ext solution (no heat (no pecified limit/RO) emote station (tests) 921G/990G C 297mr 176mr 110mr	supply fail) r response) ading data) Track data) r exceeded) r reached) n engaged) all alarms) control Unit
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G	-20 to +60 ° -20 t	cel solution m level	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel	(sp	Alarms: - (int / ext solution (no heat (no pecified limit/RO) emote station (tests) 921G/990G C 297mr 176mr 110mr	supply fail) r response) ading data) Track data) r exceeded) r reached) n engaged) all alarms) control Unit
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G	-20 to +60 ° -20 t	cel f solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel	(sp	Alarms: - (int / ext solution (no heat (no pecified limit/RO) emote station (tests) 921G/990G C 297mr 176mr 110mr	supply fail) r response) ading data) Track data) r exceeded) T reached) n engaged) all alarms) control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G Control Unit	-20 to +60 ° -20 t	cel f solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel Weight	(sp (ro	Alarms: - (int / ext solution (no heat (no pecified limit/RO) emote station (tests) 921G/990G C 297mr 176mr 110mr	supply fail) r response) ading data) Track data) r exceeded) T reached) n engaged) all alarms) control Unit
NMEA 0180 Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G	-20 to +60 ° -20 t	cel f solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel Weight NMEA/Furuno Step Output da	(sp (ro	Alarms: - (int / ext solution (no head	supply fail) r response) ading data) Track data) r exceeded) r reached) n engaged) all alarms) control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G Control Unit	-20 to +60 ° -20 t	cel f solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel Weight	(sp (ro	Alarms: - (int / ext solution (no head	supply fail) r response) ading data) Track data) r exceeded) r reached) n engaged) all alarms) control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G Control Unit	-20 to +60 ° -20 t	cel f solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel Weight NMEA/Furuno Step Output da	(sp (ro	Alarms: - (int / ext solution (no head	supply fail) r response) ading data) Track data) r exceeded) r reached) n engaged) all alarms) control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G Control Unit Ships Equipment Electronic Mag Compass	-20 to +60 ° -20 t	cel f solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel Weight NMEA/Furuno Step Output da	(sp (ro	Alarms: - (int / ext solution (no head	supply fail) r response) ading data) Track data) r exceeded) r reached) n engaged) all alarms) control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G Control Unit Ships Equipment Electronic Mag Compass	-20 to +60 ° -20 t	cel f solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel Weight NMEA/Furuno Step Output da	(sp (ro	Alarms: - (int / ext solution (no head	supply fail) r response) ading data) Track data) r exceeded) r reached) n engaged) all alarms) control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G Control Unit Ships Equipment Electronic Mag Compass	-20 to +60 ° -20 t	cel f solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel Weight NMEA/Furuno Step Output da	(sp (ro	Alarms: - (int / ext solution (no head	supply fail) r response) ading data) Track data) r exceeded) r reached) n engaged) all alarms) control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G Control Unit Ships Equipment Electronic Mag Compass NMEA Output Bas	-20 to +60 ° -20 t	cel solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel Weight NMEA/Furuno Step Output da	(sp (ro	Alarms: - (int / ext some content of the station (tests) 921G/990G Content of the station (tests) 921G/990G Content of the station (tests) 3.3Kg	supply fail) r response) ading data) Track data) r exceeded) T reached) n engaged) all alarms) control Unit m m m m control Unit m m m control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G Control Unit Ships Equipment Electronic Mag Compass NMEA Output Bas Magnetic Head	-20 to +60 ° -20 t	cel f solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel Weight NMEA/Furuno Step Output da to Radars etc	(sp (ro	Alarms: - (int / ext some content of the station (tests) 921G/990G Content of the station (tests) 921G/990G Content of the station (tests) 3.3Kg	supply fail) r response) ading data) Track data) r exceeded) r reached) n engaged) all alarms) control Unit m m m m n Track data Control Unit m m n Control Unit m Control
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G Control Unit Ships Equipment Electronic Mag Compass NMEA Output Bas	-20 to +60 ° -20 t	cel f solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel Weight NMEA/Furuno Step Output da to Radars etc 121G or 1990G	(sp (ro	Alarms: - (int / ext some content of the station (tests) 921G/990G Content of the station (tests) 921G/990G Content of the station (tests) 176mr 110mr 3.3Kg	supply fail) r response) ading data) Track data) r exceeded) r reached) n engaged) all alarms) control Unit m m m m control Unit m m m control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G Control Unit Ships Equipment Electronic Mag Compass NMEA Output Bas Magnetic Head	-20 to +60 ° -20 t	cel f solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel Weight NMEA/Furuno Step Output da to Radars etc	(sp (ro	Alarms: - (int / ext solution (no heat	supply fail) r response) ading data) Track data) r exceeded) T reached) n engaged) all alarms) control Unit m m m m control Unit m m m control Unit
Operating Temp Range Operator Cont Yaw Rudder Counter Rudder Rudder Limit Illumination Mode Switch Gyro/Mag Selector Compass S NT921G/990G Control Unit Ships Equipment Electronic Mag Compass NMEA Output Bas Magnetic Head	-20 to +60 ° -20 t	cel f solution m level T921G) keys	Power Fail Steering Fail Heading Input Data Input Fail Off Course Rudder Limit Remote Alarm Test Mechanical Width Height Depth - behind bezel Weight NMEA/Furuno Step Output da to Radars etc 121G or 1990G	(sp (ro	Alarms: - (int / ext solution (no head	supply fail) r response) ading data) Track data) exceeded) T reached) n engaged) all alarms) control Unit m m m control Unit m m control Unit contro

