

Ocenav ATM105 software version 2.5x

Acronym keywords:

Angles:

HDG, HDM – “Magnetic Heading”, Electronic Compass or fluxgate readings. It is the static orientation of the ship relative to Magnetic North.

HDT – “True Heading”. It is the static orientation of the ship relative to True North. It is calculated from the HDG, applying the correction of the declination or local magnetic variation and the compass variation if they are available.

COG – “Course Over Ground”. It is the direction in which the ship moves relative to True North. It is a value calculated dynamically by the GPS when there is movement. It is also called True Course. If there is neither tide and wind drift, the COG must be equal to the HDT, since there would be no lateral displacement.

MCOG - “Magnetic Course Over Ground”. It is the direction in which the ship moves relative to magnetic north. It is a value calculated dynamically when there is movement. Raymarine uses it in Seatalk and SeatalkNG communications. If there is no drift, the MCOG must be equal to the HDM, since there would be no lateral displacement.

AWA, RWA – “Relative Wind Angle”. It is the angle indicated by the vane of the boat.

TWA – “True Wind Angle”. It is the wind direction that would be observed on board if the ship was stopped. It is calculated from AWA and boat speed. Raymarine uses the Speed Through Water (STW) as boat speed. Other manufacturers allow to choose between this one and the Speed Over Ground (SOG).

TWD – “True Wind Direction. It is the Wind Direction relative to the geographical north (True North).

BTW, BRG – “Bearing To Waypoint”. It is the Angle formed between the True North and the line from the current position of the ship to the Waypoint position.

BOD – It is the Angle from the route origin point to the destination Waypoint and relative to True North.

SET – It is the direction to where the tide is going.

RSA – Rudder angle.

HSC – “Heading steering”. It is the Magnetic Course commanded by the autopilot. Navigating in Track mode, it will generally be equal to BTW, but it can change to compensate the drift. Navigating in Wind Vane mode, its initial value will be equal to the initial HDG, but will change to adapt to wind variations.

The autopilot will warn when the variation with respect to the initial heading is excessive.

Speed values:

STW - “Speed Trough Water”. It is measured with the Speed log.

SOG – “Speed Over Ground”. It is the True Speed. It is calculated by the GPS or positioning system.

AWS, RWS “Relative Wind Speed”. It is the wind speed measured with the anemometer.

TWS – “True Wind Speed”. It is Calculated from AWS, COG, and STW (Raymarine) or SOG.

VMC – “Velocity Made Course”. Effective speed. It is the projection of the SOG on the BTW line, positive in approach to the Waypoint and negative when moving away from it.

VMG - “Velocity Made Good”. Effective speed parallel to the wind. It is the speed overcoming the real wind (+) or falling into the wind (-). It is calculated by projecting the SOG over the wind direction.

DRIFT – Tide Intensity in knots.

ROT – Is the Ship Speed Rotation. Degrees per minute.

Other:

TRIP – It is the Journey Distance. Partial counter.

ODO – Is is the Total Traveled Distance.

WTEMP – Water Temperature.

WDST – Distance to the Waypoint from the current position.

XTE – Course error. It is the distance of the ship perpendicular to the BOD line.

NMEA0183 Sentences: (ATM105A1N / A2 / A3).

INPUT	OUTPUT	Data:
APB	APB	Course error (XTE), route data, waypoint alarms
DBT	DBT	Depth below transducer
DPT	DPT	Depth below surface / keel
MWV	MWV	Wind angle and speed: AWA, AWS, TWA, TWS
VHW	VHW	Compas heading (HDG), Speed log (STW)
VLW	VLW	Trip and ODO Distances (log measured)
MOB	MOB	MOB notification. NMEA0183 version 4.10
MTW	MTW	Water temperature
RMC	RMC	Date, Time, Latitude, Longitude, COG, SOG
VTG	VTG	COG, SOG
BOD		Angle from origin to destination Waypoint
BWC	BWC	Time, course and distance to waypoint: TIME, BTW, DTW
BWR		TIME, BTW, DTW
GLL	GLL	Position and time: LAT, LON, TIME
HDG	HDG	Compas angle, declination and compas variation
RSA	RSA	Rudder angle
HDM		Compas heading = HDG
HDT	HDT	True heading (*)
XTE	XTE	Course error
RMB	RMB	Waypoint: distance, bearing, speed BTW, DTW, VMC
VPW	VPW	Wind VMG (*)
VWR	VWR	Wind angle and speed. (Obsolete)
GGA	GGA	Position, altitude and time
GNS	GNS	GNSS Fix Data
RMA		Position, COG, SOG and magnetic declination
HSC	HSC	Autopilot commanded angle
ROT	ROT	Rotation speed. Deg / minute
DSC	DSC	Digital Selective Call
DSE	DSE	Digital Selective Call extension
TTM	TTM	Radar data: Target Distance, angle, cpa, tcpa. ARPA (*)
TLL	TLL	Radar data: Target Coordinates
AIVDM	AIVDM	AIS sentences (types 1,2,3,4,5,11,14,18,19 and 24)
MTA	MTA	Air Temperature (*)
MMB	MMB	Atmospheric Pressure (*)
MDA	MDA	Atmospheric Pressure and Air Temp. (*)
MWD	MWD	North referenced Wind Direction and speed (meteo)
VDR	VDR	SET and DRIFT (*)
WPL	WPL	MOB waypoint Coordinates
XDR	XDR	Transducer values: Pitch, Roll, Atm. pressure
	XDR	Engine temperature and pressure and tank levels.
ZDA	ZDA	Time GMT and local offset
	RPM	Engines RPM, 1 o 2 instances

NMEA2000 PGN's: (ATM105A1N / A3).

INPUT	OUTPUT	Data:
59392	59392	"ISO Acknowledge"
59904	59904	"PGN request"
60928	60928	"ISO address claim"
65288		SeataKNG alarms
126208		PGN "request group"
126720	126720	AP command
126992	126992	Date and Time GMT
	126996	PGN "product information"
127233	127233	MOB notification
127237	127237	Heading/Track control, HSC, Rudder angle
127245	127245	Rudder angle
127250	127250	Compás heading, declination and compas variation
127251	127251	Rotation speed
127257	127257	"Attitude": HDG, pitch, roll.(***)
127258	127258	Declination and Date
127488		Engine Parameters, (rapid update): pressure, RPM
127489		Engine Par. (dynamic): temp, pressure, RPM, alternator
127493		Transmission parameters: Gear, pressure, temp.
127505		Fluid levels, tank levels
128259	128259	Speed log and true
128267	128267	Depth below transducer and offset
128275	128275	TRIP and ODO
128520	128520	RADAR, ARPA / MARPA (**)
129025	129025	Position, rapid update
129026	129026	COG and SOG, rapid update
129029	129029	GNSS Position, date and time GMT
129033	128033	Date, time GMT and local time offset
129283	129283	Course error to BOD line (XTE)
129284	129284	Waypoint: Distance, BTW and VMC
129291	129291	Set and Drift (*)
130306	130306	Wind angle and speed (*)
130310	130310	Meteo data: temp.and pressure (***)
130311	130311	Meteo data: temp. presure and others (*)
130312	130312	Temperature (from several sources)(***)
130314	130314	Actual atmospheric Pressure (***)
	130845	Simnet Parameter Handle
130850	130850	Simnet: Event Command: AP command
129038	129038	AIS class A, "position report"(1,2,3)
129793	129793	AIS "base station report"(4, 11)
129794	129794	AIS "Static and voyage related data"(5)
129039	129039	AIS class B, "position report"(18)
129040	129040	AIS class B, "extended position report"(19)
129802	129802	AIS Safety Related Broadcast Message (14)

INPUT	OUTPUT	Data:
129808	129808	Digital Selective Call (DSC)
129809	129809	AIS "static data report, part A"(24)
129810	129810	AIS "static data report, part B"(24)

SEATALK1 datagrams: (ATM105A1N / A2 / A3).

INPUT	OUTPUT	Data:
0x00	0x00	Depth below transducer: DPT
0x10	0x10	Relative wind angle, AWA
0x11	0x11	Relative wind speed, AWS
0x20	0x20	Speed log: STW
0x21		TRIP distance
0x22		TOTAL distance
0x23		Water Temperature
0x25	0x25	TRIP and TOTAL distance
0x26		Instantaneous and average speed log
0x27	0x27	Water temperature
	0x30	Backlight control (**)
0x36	0x36	MOB alarm disable
0x50		Latitude - low resolution (0.01 min)
0x51		Longitude - low resolution (0.01 min)
0x52	0x52	Speed Over Ground (SOG)
0x53	0x53	Magnetic Course (MCOG)
0x54	0x54	Time GMT
0x56	0x56	Date
0x57	0x57	GNSS precision and number of sats
0x58	0x58	Latitude and Longitude - high resolution (0.001 min)
0x6E	0x6E	MOB launch
0x82	0x82	Waypoint / MOB data
0x84	0x84	HDG, HSC, RSA and Autopilot mode
0x85	0x85	Waypoint: Distance (DTW), XTE, VMC, BRG
0x86	0x86	Autopilot keyboard control (**)
0x89	0x89	Magnetic Heading (HDG) (***)
0x99	0x99	Declination or Magnetic Variation
0x9C	0x9C	Compass heading (HDG), Rudder angle (RSA)
0x9E	0x9E	Waypoint Latitude and Longitude
0xA2	0xA2	Waypoint alarms: arrival and perpendicular passed
0xA3	0xA3	High resolution Rudder angle (RSA)
0xA4	0xA4	Seatalk ID request and answer
0xA5	0xA5	GNSS data
0xAC	0xAC	High resolution Cross Track Error (XTE)

NOTES:

(*) - The central calculates this data internally if it does not receive it.

(**) - Optional alarms in combination with the remote control.

(***) - Gyrocompass, pressure and temperature data also available with optional sensors.

- All the data received through Seatalk and Nmea2000 are sent via WiFi in NMEA0183 format streams. WiFi received data is also translated into Seatalk and NMEA2000 formats.

Translation Table NMEA0183 -> NMEA2000 / Seatalk

NMEA0183	Data Input / Stored / Calculated	NMEA2000	Seatalk
APB	XTE, Arrival alarms <u>XTE, Arrival alarms</u>	129283 129284**	0x85** 0xA2, 0xAC
DBT	DBT	128267	0x00
DPT	DBT, offset	128267	0x00
MWV	AWA, AWS, TWA, TWS, TWD, VMG(*)	130306	0x10, 0x11
VHW	HDG, HDT, STW <u>STW, HDT, SET, DRIFT</u> <i>(** Output every 2 seconds)</i>	127250 128259 129291**	0x20 0x89 0x9C**
VLW	TRIP, ODO	128275	0x25
MOB	MOB data, launch and stop	127233	0x82 0x6E 0x36
MTW	WTEMP, WTEMP	130312	0x20
RMC	TIME, DATE, BCOORD, SOG, COG, DECLIN <u>TIME, DATE, BCOORD, SOG, COG, DECLIN</u> <i>TWA, TWS, TWD, VMG, VMC, SET, DRIFT</i> <i>(** Output every 2 seconds)</i>	126992 127258 129025 129026 129033 129291**	0x52 0x53 0x54 0x56 0x58 0x99
VTG	SOG, COG <u>SOG, COG</u> <i>MCOG, STW (* simulated)</i>	129026 128259*	0x52 0x53 0x20*
BOD	<u>BOD</u>	129284**	
BWC	WCOORD, BTW, WDST, VMC	129284	0x82, 0x9E
BWR	WCOORD, BTW, WDST, VMC	129284	0x82, 0x9E
GLL	TIME, BCOORD, TIME, BCOORD	126992 129025	0x54 0x58
HDG	Deviation, Declination, HDG, HDT <u>Deviation, Declination, HDG, HDT</u> <i>(** Output every 2 seconds)</i>	127250 127258 129291**	0x9C** 0x89 0x99
RSA	RSA, RSA	127245	0x9C** 0xA3
HDM	HDG, HDT, HDG, HDT	127250	0x89
HDT (I/O)	HDT, HDT	127250	0x89
XTE	XTE, XTE	129283	0xAC
RMB	XTE, WCOORD, BTW, VMC, Arrival alarms <u>XTE, WCOORD, BTW, Arrival alarms</u> <i>VMC</i>	129283 129284	0x82 0xA2 0x85, 0xAC 0x9E
VPW	VMG		
VWR	AWA, AWS, TWA, TWS, TWD, VMG	130306	0x10, 0x11
GGA	TIME, BCOORD, HDOP, sats info <u>TIME, BCOORD, HDOP, sats info</u>	126992 129025 129029	0x54 0x58 0xA5

GNS	TIME, BCOORD, HDOP, sats info <u>TIME, BCOORD, HDOP, sats info</u>	126992 129033 129025 129029	0x54 0x58 0xA5
RMA	BCOORD, SOG, COG, DECLIN <u>BCOORD, SOG, COG, DECLIN</u>	127258 129025 129026	0x58 0x52 0x53 0x99
HSC	HSC	127237	0x84
ROT	ROT, ROT	127251	
DSC	Digital Selective Call, NMEA0183 Output	129808	
DSE	Digital Selective Call, NMEA0183 Output	129808	
TTM	RADAR Tracked Target Message	128520	
TLL	<u>RADAR Target Latitude and Longitude</u>	Alarm Purpose	Alarm Purp
AIVDM	AIS message: 1,2,3 AIS message: 4,11 AIS message: 5 AIS message: 14 AIS message: 18 AIS message: 19 AIS message: 24	129038 129793 129794 129802 129039 129040 129809	
MTA	AIR TEMP, AIR TEMP	130312	
MMB	AT.PRESSURE, AT.PRESSURE	130314	
MDA	METEO COMPOSITE <u>AIR TEMP, WTEMP</u> <u>AT.PRESS</u>	130310 130311 130312 130314	0x27
MWD (O)	Internally Calculated TWD, TWS		
VDR (I/O)	SET, DRIFT, SET, DRIFT	129291	
WPL	MOB Waypoint Location	127233	0x82 0x6E 0x36
XDR (I/O)	AT.PRESS, PITCH, ROLL AT.PRESS, HDG, HDT, PITCH, ROLL	130314 127257 127250*	0x89*
ZDA	Local Time and Date <u>Local Time and Date</u>	129033	0x54

(*) Automatic output is done if the sensor (Gyro, Meteo) is installed.

(**) This output is done if the needed parameters to complete it are been received.

(O) Output only on the NMEA0183 and WiFi channels

(* Simulated) Raymarine systems calculate the True wind only from STW. This feature replaces STW value by the SOG when STW data faults in all busses.

Translation Table Seatalk -> NMEA2000 / NMEA0183

Seatalk	Data Input / <u>Stored</u> / <i>Calculated</i>	NMEA2000	NMEA0183
0x00	DBT	128267	DBT DPT
0x10 0x11	AWA, AWS, TWA, TWS, TWD, VMG(*)	130306	MWV VWR VPW
0x26 0x20	STW, <u>STW</u>, SET, DRIFT <i>(** 129291 and VDR every 2 seconds, conditioned to other available data)</i>	128259 129291**	VHW VDR**
0x25 0x21 0x22	TRIP, ODO (0x25 priority data over 0x21 and 0x22)	128275	VLW
0x36	MOB stop	127233	MOB
0x27 0x23	WTEMP, <u>WTEMP</u>	130312	MTW
0x58 0x50 0x51	BCOORD <u>BCOORD, GPS quality</u> (0x58 priority data over 0x50 and 0x51)	129025	GLL
0x52 0x53	SOG, COG <u>SOG, COG</u> SET, DRIFT, MCOG STW (* simulated)	129026 128259* 129291**	RMC** VTG VDR** VHW*
0x54	TIME, <u>TIME</u>	126992	ZDA
0x56	DATE, <u>DATE</u>	129033	
0x57	<u>HDOP, sats info</u>		
0x82 0x6E	MOB launch	127233	WPL MOB
0x84	HDG, HSC, RSA, <u>HDT</u> <u>HDG, HSC, RSA, pilot status</u>	127237 127245 127250	HDG HDT RSA HSC
0x85	XTE, BTW, <u>WDST</u>, <u>VMC</u> <u>XTE, BTW, WDST</u>	129283 129284*	XTE BWC
0x86	Seatalk to NMEA2000 Key translations	61184 126208	
0x89	HDG, HDG, <u>HDT</u>, SET, DRIFT <i>(** 129291 and VDR every 2 seconds, conditioned to other available data)</i>	127250(R) 127250(T) 129291**	HDG HDT VDR*
0x99	DECLINATION, <u>DECLINATION</u>	127258	
0x9C	HDG, RSA, <u>HDG, RSA, HDT</u>	127250 127245	HDG HDT RSA

0x9E 0xA2	WCOORD, <u>WCOORD</u> <u>Arrival alarms</u>	129284**	RMB
0xA3	RSA: Rudder angle, <u>RSA</u>	127245	RSA
0xA4 (I/O)	<u>Seatalk Protocol</u>		
0xA5	GNSS HDOP, sats info <u>GNSS HDOP, sats info</u>	129029**	GGA**
0xAC	XTE, XTE	129283	XTE

(*) Automatic output is done if the sensor (Gyro, Meteo) is installed.

(**) This output is done if the needed parameters to complete it are been received.

(O) Output only on the NMEA0183 and WiFi channels

(* Simulated) Raymarine systems calculate the True wind only from STW. This feature replaces STW value by the SOG when STW data faults in all busses.

Translation Table NMEA2000 -> NMEA0183 / Seatalk

NMEA2000	Data Input / <u>Stored</u> / <i>Calculated</i>	NMEA0183	Seatalk
65360 65379	HSC, <u>HSC</u>	HSC	0x84
126992	Local Time and Date <u>Local Time and Date</u>	ZDA	0x54 0x56
127233	MOB data, launch and stop	WPL MOB	0x82 0x6E 0x36
127237	HDG, HSC, BOD, <i>HDT</i> <u>HDG, BOD, HSC</u>	HDG HDT APB /HSC**	0x89 0x84** 0x9C**
127245	RSA, <u>RSA</u>	RSA	0x9C** 0xA3
127250	Deviation, Declination, HDG, HDT, <i>HDT</i> <u>Deviation, Declination, HDG, HDT</u> <i>(** Output every 2 seconds)</i>	HDG HDT	0x89(R) 0x89(T) 0x99 0x9C**
127251	ROT, <u>ROT</u>	ROT*	
127257	PITCH, ROLL <u>PITCH, ROLL</u>	XDR (I/O)*	
127258	DECLIN, <u>DECLIN</u>	RMC**	0x99
127488 127489 127493	ENGINE AND TRANSMISSION DATA For Datalogger purposes only		
128259	STW, <i>STW, SET, DRIFT</i> <i>(** Output every 2 seconds)</i>	VHW VDR**	0x20
128267	DBT, <u>offset</u>	DBT DPT	0x00
128275	TRIP, ODO	VLW	0x25
128520	RADAR Tracked Target Message	TTM	
129025	BCOORD, <u>BCOORD</u>	GLL	0x58
129026	SOG, COG <u>SOG, COG</u> <i>MCOG, STW (** simulated)</i>	RMC VTG VDR* VHW**	0x52 0x53 0x20**
129029	TIME, DATE, BCOORD, HDOP, sats info <u>TIME, DATE, BCOORD, HDOP, sats info</u>	GLL GGA ZDA**	0x56 0x58 0xA5
129033	TIME, DATE <u>TIME, DATE</u>	ZDA	0x54 0x56
129283	XTE, <u>XTE</u>	XTE RMB**	0xAC
129284	WCOORD, BTW, VMC, BOD, Arrival alarms <u>WCOORD, BTW, VMC, BOD, Arrival alarms</u>	RMB BWC	0x82 0xA2 0x9E

129808	Digital Selective Call	DSC / DSE	
130310	METEO COMPOSITE <u>AIR TEMP, WTEMP</u> <u>AT.PRESS</u>	MDA* MTW MMB* MTA*	0x27
130311	METEO COMPOSITE <u>AIR TEMP, WTEMP</u> <u>HUMIDITY, AT.PRESS</u>	MDA MTW MMB* MTA*	0x27
130312	AIR TEMP, WTEMP <u>AIR TEMP, WTEMP</u>	MTW MTA	0X27
130314	AT.PRESS <u>AT.PRESS</u>	MMB	
129291	SET, DRIFT, SET, DRIFT	VDR	
129038	AIS message: 1,2,3	AIVDM (1,2,3)	
129793	AIS message: 4,11	AIVDM (4,11)	
129794	AIS message: 5	AIVDM (5)	
129802	AIS message: 14	AIVDM (14)	
129039	AIS message: 18	AIVDM (18)	
129040	AIS message: 19	AIVDM(19)	
129809	AIS message: 24	AIVDM (24)	
127488	Engine RPM	RPM	
127488	Engine pressure and temperature	XDR	
127489			
127505	Tank levels		

(*) Automatic output is done if the sensor (Gyro, Meteo) is installed.

(**) This output is done if the needed parameters to complete it are been received.

(O) Output only on the NMEA0183 and WiFi channels

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