

| Description                         | Short name           | Index     | Res   | Calc                                                    | NMEA sentences supported |
|-------------------------------------|----------------------|-----------|-------|---------------------------------------------------------|--------------------------|
| Supported NMEA messages Transmit    |                      |           |       |                                                         |                          |
| Supported NMEA messages Receive     |                      |           |       |                                                         |                          |
| Actual Rudder/Azimuth Angle         | Angle Rudder/Azi     | 0x3000:02 | 0.1   | RSA, TRD                                                |                          |
| Commanded Rudder/Azimuth Angle      | Ang. Rud/Azi Com     | 0x3000:07 | 0.1   | ROR, TRC, HTD                                           |                          |
| Actual Pitch Propeller              | Pitch Propeller      | 0x3020:02 | 0.1   | TRD                                                     |                          |
| Commanded Pitch Propeller           | Pitch Prop. Com      | 0x3020:07 | 0.1   | PRC, TRC                                                |                          |
| Actual Pitch% Propeller             | Pitch% Propeller     | 0x3030:02 | 0.1   | RPM, TRD                                                |                          |
| Commanded Pitch% Propeller          | Pitch% Prop. Com     | 0x3030:07 | 0.1   | PRC, TRC                                                |                          |
| Actual RPM Propeller                | RPM Propeller        | 0x3080:02 | 0.1   | RPM, TRD                                                |                          |
| Commanded RPM Propeller             | RPM Prop. Com        | 0x3080:07 | 0.1   | PRC, TRC                                                |                          |
| Actual RPM% Propeller               | RPM% Propeller       | 0x3090:02 | 0.1   | TRD                                                     |                          |
| Commanded RPM% Propeller            | RPM% Prop. Com       | 0x3090:07 | 0.1   | PRC, TRC                                                |                          |
| Actual RPM Engine                   | RPM Engine           | 0x3200:02 | 0.1   | RPM, TRD                                                |                          |
| Comanded RPM Engine                 | RPM Engine Com       | 0x3200:07 | 0.1   | PRC, TRC                                                |                          |
| Temperature Engine                  | Engine temp          | 0x3380:02 | 0.1   | XDR                                                     |                          |
| Dimmer                              | Dimmer               | 0x3500:02 | 1     | DDC                                                     |                          |
| Colour                              | Colour               | 0x3500:03 | 1     | DDC                                                     |                          |
| Temperature General                 | Temperature          | 0x3520:02 | 0.1   | XDR                                                     |                          |
| Speed through Water                 | Speed W              | 0x3900:02 | 0.01  | VHW, VBW                                                |                          |
| Speed through Water, Long           | Speed WL             | 0x3908:02 | 0.01  | VBW                                                     |                          |
| Speed through Water, Trans          | Speed WT             | 0x3910:02 | 0.01  | VBW                                                     |                          |
| Speed through Water, Trans stern    | Speed WTS            | 0x3918:02 | 0.01  | VBW                                                     |                          |
| Speed Over Ground                   | Speed G              | 0x3920:02 | 0.01  | VTG, VBW, RMC                                           |                          |
| Speed Over Ground, Long             | Speed GL             | 0x3928:02 | 0.01  | VBW                                                     |                          |
| Speed Over Ground, Trans            | Speed GT             | 0x3930:02 | 0.01  | VBW                                                     |                          |
| Speed Over Ground, Trans stern      | Speed GTS            | 0x3938:02 | 0.01  | VBW                                                     |                          |
| Water depth below transducer        | Depth BT             | 0x3980:02 | 0.1   | DBT, DPT                                                |                          |
| Water depth below keel              | Depth BK             | 0x3988:02 | 0.1   | DPT(c)                                                  |                          |
| Water depth below surface           | Depth BS             | 0x3990:02 | 0.1   | DPT(c)                                                  |                          |
| Temperature Water                   | Water temp.          | 0x3998:02 | 0.1   | MTW, XDR                                                |                          |
| Wind speed relative                 | Wind speed R         | 0x39E0:02 | 0.1   | MWV                                                     |                          |
| Wind speed true                     | Wind speed T         | 0x39E8:02 | 0.1   | WC MWV, MWD                                             |                          |
| Wind direction Relative (deg)       | Wind direction R     | 0x39F0:02 | 0.1   | MWV                                                     |                          |
| Wind direction true (ship heading)  | Wind direction T     | 0x39F8:02 | 0.1   | WC MWV                                                  |                          |
| Wind direction geo magnetic         | Wind direct. GM      | 0x3A00:02 | 0.1   | WC MWD                                                  |                          |
| Wind direction geo true             | Wind direct. GT      | 0x3A08:02 | 0.1   | WC MWD                                                  |                          |
| Humidity relative                   | Rel. Humidity        | 0x3A30:02 | 0.1   | MHU, XDR                                                |                          |
| Humidity absolute                   | Abs. Humidity        | 0x3A38:02 | 0.01  | XDR                                                     |                          |
| Dew point                           | Dew point            | 0x3A40:02 | 0.1   | MHU, XDR                                                |                          |
| Barometric pressure                 | Barometric pr.       | 0x3A48:02 | 1     | MMB, XDR                                                |                          |
| Temperature Air                     | Air temp.            | 0x3A70:02 | 0.1   | MTA, XDR                                                |                          |
| Course over ground Magnetic         | Course COG M         | 0x3AA0:02 | 0.1   | CC VTG, VTGcc, RMC cc                                   |                          |
| Course over ground true             | Course COG T         | 0x3AA8:02 | 0.1   | CC RMC, VTG, VTGcc                                      |                          |
| Heading magnetic sensor ID          | H. sensor M ID       | 0x3AB0-01 | na    | HMR                                                     |                          |
| Heading Magnetic                    | Heading M            | 0x3AB0:02 | 0.1   | CC HMR, HDG, HTD, VHW, HMRcc, THSc, HTDcc, VHWcc, HDTcc |                          |
| Commanded Heading to steer Magnetic | Heading M, Com       | 0x3AB0:07 | 0.1   | CC HTD, HSC, HTDcc, HSCcc                               |                          |
| Heading true sensor ID              | H. sensor T ID       | 0x3AB8-01 | na    | HMR                                                     |                          |
| Heading true                        | Heading T            | 0x3AB8:02 | 0.1   | CC HMR, THS, HTD, VHW, HDT, HMRcc, HDGcc, HTDcc, VHWcc  |                          |
| Commanded Heading to steer True     | Heading T, Com       | 0x3AB8:07 | 0.1   | CC HTD, HSC, HTDcc, HSCcc                               |                          |
| Actual heading sensor diff          | H. sensor diff       | 0x3AC8:02 | 0.1   | HMR                                                     |                          |
| Magnetic Variation                  | Mag.var.             | 0x3AD0:02 | 0.1   | (cc) HMR, RMC, HDG                                      |                          |
| Actual Rate of turn                 | Rate of turn         | 0x3AE0:02 | 0.1   | ROT                                                     |                          |
| Commanded Rate of turn              | Rate of turn Com     | 0x3AE0:07 | 0.1   | HTD                                                     |                          |
| Set magnetic (Set&drif)             | Set Magnetic         | 0x3AE8:02 | 0.1   | CC VDR, VDRcc                                           |                          |
| Set true (Set&drif)                 | Set True             | 0x3AF0:02 | 0.1   | CC VDR, VDRcc                                           |                          |
| Drift (Set&drif)                    | Drift                | 0x3AF8:02 | 0.001 | VDR                                                     |                          |
| Roll angle (ship)                   | Roll angle           | 0x3B20:02 | 0.1   | XDR                                                     |                          |
| Pitch angle (Ship)                  | Pitch angle          | 0x3B28:02 | 0.1   | XDR                                                     |                          |
| Heave (length m)                    | Heave                | 0x3B30:02 | 0.1   | XDR                                                     |                          |
| Yaw angle                           | Yaw angle            | 0x3B38:02 | 0.1   | XDR                                                     |                          |
| Sway (length m)                     | Sway                 | 0x3B40:02 | 0.1   | XDR                                                     |                          |
| Surge (length m)                    | Surge                | 0x3B48:02 | 0.1   | XDR                                                     |                          |
| Heel angle                          | Heel angle           | 0x3B50:02 | 0.1   | XDR                                                     |                          |
| Trim angle                          | Trim angle           | 0x3B58:02 | 0.1   | XDR                                                     |                          |
| Destination Waypoint ID             | Dest. WP ID          | 0x3B90:01 | na    | APB, RMB, BWR(BWC), WCV, ZTG                            |                          |
| Position destination WP status      | Dest. WP pos. Status | 0x3B90:10 | na    | Follows Dest.WP pos.                                    |                          |
| Position destination WP Latitude    | Dest. WP pos.        | 0x3B90:12 | na    | RMB, BWR, (BWC handled by BWR)                          |                          |
| Position destination WP Longitude   | Dest. WP pos.        | 0x3B90:13 | na    | Follows Dest.WP pos.                                    |                          |
| Bearing pos to dest WP Magnetic     | Bearing P to D, M    | 0x3B90:22 | 0.1   | CC RMBcc, APB, BWR(BWC), APBcc, BWRcc(BWCCc)            |                          |
| Bearing pos to dest WP True         | Bearing P to D, T    | 0x3B90:32 | 0.1   | CC RMB, APB, BWR(BWC), APBcc, BWRcc(BWCCc)              |                          |
| Bearing org to dest WP Magnetic     | Bearing O to D, M    | 0x3B90:42 | 0.1   | CC APB, APBcc                                           |                          |
| Bearing org to dest WP True         | B                    |           |       |                                                         |                          |

| Sentence length |             | 1                                              | 2                   | 3                   | 4      | 5            | 6   | 7                                      | 8                                        | 9            | 10            | 11                       | 12           | 13                                 | 14                     | 15    | 16                | 17  | 18  | 19            | 20                          | 21                                     | 22                                        | 23                  | 24                                | 25         | 26                                   | 27                              | 28           | 29                                       | 30                                       | 31    | 32    | 33           | 34           | 35    | 36           |                     |                      |           | 37                                                        | 38                              | 39                            |                   |               |   |     |  |  |
|-----------------|-------------|------------------------------------------------|---------------------|---------------------|--------|--------------|-----|----------------------------------------|------------------------------------------|--------------|---------------|--------------------------|--------------|------------------------------------|------------------------|-------|-------------------|-----|-----|---------------|-----------------------------|----------------------------------------|-------------------------------------------|---------------------|-----------------------------------|------------|--------------------------------------|---------------------------------|--------------|------------------------------------------|------------------------------------------|-------|-------|--------------|--------------|-------|--------------|---------------------|----------------------|-----------|-----------------------------------------------------------|---------------------------------|-------------------------------|-------------------|---------------|---|-----|--|--|
|                 |             | Sentence                                       | APB                 | BWC                 | BWR    | DBT          | DDC | DPT                                    | GGA                                      | GLL          | HDG           | HDT                      | HMR          | HSC                                | HTD                    | MHU   | MMB               | MTA | MTW | MWD           | MWV                         | PRC                                    | RMB                                       | RMC                 | ROR                               | ROT        | RPM                                  | RSA                             | THS          | TRC                                      | TRD                                      | VBW   | VDR   | VHW          | NLW          | VTG   | WCV          | XDR                 |                      |           |                                                           | XTE                             | ZDA                           | ZTG               |               |   |     |  |  |
|                 |             | ASCII char:                                    | 50-82               | 65-82               | 65-82  | 29-50        | 21  | 23-30                                  | 72-78                                    |              | 46            | 27                       | 17           | 59-82                              | 25-30                  | 25-30 | 20                | 20  | 20  | 17-20         | 35-43                       | 25-30                                  | 33-40                                     | 61-82               | 66-70                             | 25-30      | 17-20                                | 25-30                           | 23-27        | 27                                       | 17                                       | 33-41 | 29-37 | 43-52        | 29-35        | 35-43 | 35-50        | 37-45               | 22-42                | 23-82     | 25-28                                                     | 28                              | 38                            | 27-30             |               |   |     |  |  |
| Characters      | Worst case: | 82                                             | 82                  | 82                  | 50     | 21           | 30  |                                        | 78                                       | 46           | 27            | 17                       | 82           | 30                                 | 30                     | 20    | 20                | 20  | 20  | 43            | 30                          | 40                                     | 82                                        | 70                  | 30                                | 20         | 30                                   | 27                              | 17           | 41                                       | 37                                       | 52    | 35    | 43           | 50           | 45    | 42           | 82                  |                      |           |                                                           | 28                              | 38                            | 30                |               |   |     |  |  |
|                 | Best case:  | 50                                             | 65                  | 65                  | 29     | 21           | 23  |                                        | 72                                       | 46           | 27            | 17                       | 59           | 25                                 | 25                     | 20    | 20                | 20  | 17  | 35            | 25                          | 33                                     | 61                                        | 66                  | 25                                | 17         | 25                                   | 23                              | 27           | 33                                       | 29                                       | 43    | 29    | 35           | 35           | 37    | 22           | 23                  |                      |           |                                                           | 25                              | 38                            | 27                |               |   |     |  |  |
| Input units     |             |                                                |                     |                     |        |              |     |                                        |                                          |              | Degrees (Mag) | Degrees (True)           | Degrees +E/W | Degrees Mag & True                 | Heading Degrees T or M | °C    | Inches of mercury | °C  | °C  | Degrees T & M | Degrees (Rel/True ship bow) | RPM mode: P(%) / R (rpm) or V=invalid  | N. miles                                  | UTC                 | Degrees ("°" = bow turns to port) | ROT: °/min | Source type: S (shaft) or E (engine) | Degrees "°" = bow turns to port | Degrees True | Azi. Demand:Degrees                      | Azi: Degrees                             | Knots | Knots | Knots        | N. miles     | Knots | Knots        | Transducer          | Type                 | Unit      | Comments                                                  | Cross-track error in N. miles   | UTC time: h:mm:ss             | UTC time: h:mm:ss |               |   |     |  |  |
|                 |             | Degrees True or Mag.                           | Latitude            | Latitude            | metres | Colour (DKN) |     | Latitude                               | Latitude                                 | Degrees +E/W |               | Degrees True or Magnetic |              | Rudder Deg. (unsigned) L/R (PS/SB) | Percent                | Bar   |                   |     |     | Knots         | Knots or m/s or Km/h        | Pitch mode: P (%) /D("°") or V=invalid | Cross-track error in N.miles              |                     |                                   |            |                                      |                                 |              | RPM mode: P(%), R(rpm) or V (invalid)    | RPM mode: P(%), R(rpm) or V (invalid)    |       |       | Degrees True | km/h         | km/h  | WP ID        | Temperature         | C                    | C="°C     | Mode: A/D/E/M/S/ N Note: Only A & D modes giv a valid XTE | UTC day: 01-31                  | Time to go: h:mm:ss           |                   |               |   |     |  |  |
|                 |             | XTE in N.Miles Dir. To steer: L ("°"/ R ("°")) | Longitude           | Longitude           | feet   |              |     | Longitude                              | Longitude                                |              |               | Sensor ID 1 and 2        |              |                                    | ROT: °/min             |       |                   |     |     | m/s           |                             | Location ID: B/P/S/C/E /W              | Latitude                                  | Longitude           |                                   |            | Percent (pitch)                      |                                 |              | Pitch Mode: P(%), D ("°") or V (invalid) | Pitch Mode: P(%), D ("°") or V (invalid) |       |       | Degrees Mag. | Degrees True |       | Degrees True | Mode: A/D           | Angular displacement | A         | D=degr.                                                   | Dir. To steer: L ("°"/ R ("°")) | UTC month: 01-12              | WP ID             |               |   |     |  |  |
|                 |             |                                                | Degrees True & Mag. | Degrees True & Mag. |        |              |     |                                        | Mode/status s (used for position status) |              |               |                          |              |                                    |                        |       |                   |     |     |               |                             |                                        | Longitude                                 | Knots               |                                   |            |                                      |                                 |              |                                          | Thruster number (Odd= Bow thr.)          |       |       | Degrees Mag. | Degrees Mag. |       |              | Abs. Humidity       | B                    | K=kg/m³   |                                                           | UTC year: XXXX                  |                               |                   |               |   |     |  |  |
|                 |             |                                                | N. Miles            | N. Miles            |        |              |     | GPS quality (used for position status) |                                          |              |               |                          |              |                                    |                        |       |                   |     |     |               |                             |                                        | Degrees True                              | Degrees True        | Date:dd/mm/yy                     |            |                                      |                                 |              |                                          |                                          |       |       |              |              |       |              | Linear displacement | D                    | M= Metres |                                                           | Local zone hours: 00h to ±13h   |                               |                   |               |   |     |  |  |
|                 |             |                                                | WP ID               | WP ID               |        |              |     | HDOP (decimal value)                   |                                          |              |               |                          |              |                                    |                        |       |                   |     |     |               |                             |                                        | Knots                                     |                     |                                   |            |                                      |                                 |              |                                          |                                          |       |       |              |              |       |              |                     | Pressure             | P         | P= pascal                                                 |                                 | Local zone minutes: 00 to +59 |                   |               |   |     |  |  |
|                 |             |                                                |                     |                     |        |              |     | # of satellites (number)               |                                          |              |               |                          |              |                                    |                        |       |                   |     |     |               |                             |                                        | Arrival status: A (Passed) V (Not passed) | Magvar: Degrees E/W |                                   |            |                                      |                                 |              |                                          |                                          |       |       |              |              |       |              |                     |                      |           | Pressure                                                  | P                               | H=hPa                         |                   |               |   |     |  |  |
|                 |             |                                                |                     |                     |        |              |     |                                        |                                          |              |               |                          |              |                                    |                        |       |                   |     |     |               |                             |                                        |                                           |                     |                                   |            |                                      |                                 |              |                                          |                                          |       |       |              |              |       |              |                     |                      |           |                                                           | Pressure                        | P                             | B=Bar             |               |   |     |  |  |
|                 |             |                                                |                     |                     |        |              |     |                                        |                                          |              |               |                          |              |                                    |                        |       |                   |     |     |               |                             |                                        |                                           |                     |                                   |            |                                      |                                 |              |                                          |                                          |       |       |              |              |       |              |                     |                      |           |                                                           |                                 |                               |                   | Rel. Humidity | H | P=% |  |  |

**NMEA Talker device identifiers**

| Description:                                            | ID | Supported by XDi- N |
|---------------------------------------------------------|----|---------------------|
| Heading/track controller (autopilot) general            | AG | Yes                 |
| - magnetic                                              | AP | Yes                 |
| Automatic identification system                         | AI | Yes                 |
| Bilge system                                            | BI |                     |
| Bridge navigational watch alarm system                  | BN | Yes                 |
| Communications: - digital selective calling (DSC)       | CD |                     |
| - data receiver                                         | CR |                     |
| - satellite                                             | CS |                     |
| - radio-telephone (MF/HF)                               | CT |                     |
| - radio-telephone (VHF)                                 | CV |                     |
| - scanning receiver                                     | CX |                     |
| Direction finder                                        | DF |                     |
| Duplex repeater station                                 | DU |                     |
| Electronic chart system (ECS)                           | EC | Yes                 |
| Electronic chart display and information system (ECDIS) | EI | Yes                 |
| Emergency position indicating radio beacon (EPIRB)      | EP | Yes                 |
| Engine room monitoring system                           | ER | Yes                 |
| Fire door controller/monitoring system                  | FD |                     |
| Fire extinguisher system                                | FE |                     |
| Fire detection system                                   | FR |                     |
| Fire sprinkler system                                   | FS |                     |
| Galileo positioning system                              | GA | Yes                 |
| Global positioning system (GPS)                         | GP | Yes                 |
| GLONASS positioning system                              | GL | Yes                 |
| Global navigation satellite system (GNSS)               | GN | Yes                 |
| Heading sensors: - compass, magnetic                    | HC | Yes                 |
| - gyro, north seeking                                   | HE | Yes                 |
| - fluxgate                                              | HF | Yes                 |
| - gyro, non-north seeking                               | HN | Yes                 |
| Hull door controller/monitoring system                  | HD |                     |
| Hull stress monitoring                                  | HS |                     |
| Integrated instrumentation                              | II | Yes                 |
| Integrated navigation                                   | IN | Yes                 |
| LORAN: LORAN-C                                          | LC | Yes                 |
| Navigation light controller                             | NL |                     |
| Proprietary code                                        | P  |                     |
| Radar and/or radar plotting                             | RA | Yes                 |
| Propulsion machinery including remote control           | RC | Yes                 |
| Sounder, depth                                          | SD | Yes                 |
| Steering gear/steering engine                           | SG | Yes                 |
| Electronic positioning system, other/general            | SN | Yes                 |
| Sounder, scanning                                       | SS | Yes                 |
| Turn rate indicator                                     | TI | Yes                 |
| Microprocessor controller                               | UP | Yes                 |
| (0<= <=9) User configured talker identifier a           | U# |                     |
| Velocity sensors: - Doppler, other/general              | VD | Yes                 |
| - speed log, water. magnetic                            | VM | Yes                 |
| - speed log, water, mechanical                          | VW | Yes                 |
| Voyage data recorder                                    | VR | Yes                 |
| Watertight door controller/monitoring system            | WD |                     |
| Water level detection system                            | WL | Yes                 |
| Transducer                                              | YX | Yes                 |
| Timekeeper, time/date: - atomic clock                   | ZA | Yes                 |
| - chronometer                                           | ZC | Yes                 |
| - quartz                                                | ZQ | Yes                 |
| - radio update                                          | ZV | Yes                 |
| Weather instrument                                      | WI | Yes                 |

BAM central alert management f. CA

Emergency locator EL

BeiDou position system GB  
IRNSS positioning system GI  
QZSS positioning system GQ

Integrated communication sys IC

Network device ND

Serial to network gateway func SI

a) The U# talker identifier does not convey the nature of the device transmitting the sentence, and should not be "fixed" into a unit at manufacture. This is intended for special purpose applications. The U# talker identifier indicates that the devices talker identifier has been changed through external control.