3.2.44   GPGGA
GPS fix data and undulation

OEM Platform: 615, 617, 617D, 628, 638, FlexPak6, FlexPak6D, ProPak6

This log contains time, position and fix related data of the GNSS receiver. For greater precision but with loss of the undulation fields, use the GPGGARTK log (*page 479*). See also *Table 106, Position Precision of NMEA Logs* on *page 481.*

The GPGGA log outputs these messages without waiting for a valid almanac. Instead, it uses a UTC time, calculated with default parameters. In this case, the UTC time status is set to WARNING since it may not be one hundred percent accurate. When a valid almanac is available, the receiver uses the real parameters. Then the UTC time status is set to VALID.

Message ID: **218**
Log Type   **Synch**

Recommended Input:

> log gpgga ontime 1

Example:

```
$GPGGA,134658.00,5106.9792,N,11402.3003,W,2,09,1.0,1048.47,M,
-16.27,M,08,AAAA*60
```

The NMEA (National Marine Electronics Association) has defined standards that specify how electronic equipment for marine users communicate. GNSS receivers are part of this standard and the NMEA has defined the format for several GNSS data logs otherwise known as 'sentences'.

Each NMEA sentence begins with a '$' followed by the prefix 'GL' or 'GN'followed by a sequence of letters that define the type of information contained in the sentence. Data contained within the sentence is separated by commas and the sentence is terminated with a two digit checksum followed by a carriage return/line feed. Here is an example of a NMEA sentence describing time, position and fix related data:

> $GPGGA,134658.00,5106.9792,N,11402.3003,W,2,09,1.0,1048.47,M,
>
> -16.27,M,08,AAAA*60

The GPGGA sentence shown above and other NMEA logs are output the same no matter what GNSS receiver is used, providing a standard way to communicate and process GNSS information. For more information about NMEA, see the NMEATALKER command on page *219.*

Field	Structure	Field Description	Symbol	Example
1	$GPGGA	Log header		$GPGGA
2	utc	UTC time status of position (hours/minutes/ seconds/ decimal seconds)	hhmmss.ss	202134.00
3	lat	Latitude (DDmm.mm)	llll.ll	5106.9847
4	lat dir	Latitude direction (N = North, S = South)	a	N
5	lon	Longitude (DDDmm.mm)	yyyyy.yy	11402.2986
6	lon dir	Longitude direction (E = East, W = West)	a	W
7	quality	refer to *Table 105, GPS Quality Indicators* on *page 476*	x	1
8	# sats	Number of satellites in use. May be different to the number in view	xx	10
9	hdop	Horizontal dilution of precision	x.x	1.0
10	alt	Antenna altitude above/below mean sea level	x.x	1062.22
11	a-units	Units of antenna altitude (M = metres)	M	M
12	undulation	Undulation - the relationship between the geoid and the WGS84 ellipsoid	x.x	-16.271
13	u-units	Units of undulation (M = metres)	M	M
14	age	Age of correction data (in seconds) [a]	xx	(empty when no differential data is present)
15	stn ID	Differential base station ID	xxxx	(empty when no differential data is present)
16	*xx	Checksum	*hh	*48
17	[CR][LF]	Sentence terminator		[CR][LF]

a. The maximum age reported here is limited to 99 seconds.

Table 105: GPS Quality Indicators

Indicator	Field Description
0	Fix not available or invalid
1	Single point
2	Pseudorange differential
	Unconverged OmniSTAR
	HP/XP/G2/VBS converging PPP
4	RTK fixed ambiguity solution (RT2)
	Operational (refer to *UALCONTROL* on *page 331*)
5	RTK floating ambiguity solution (RT20)
	Converged OmniSTAR HP/XP/G2
	Converged PPP
6	Dead reckoning mode
7	Manual input mode (fixed position)
8	Simulator mode
9	WAAS (SBAS)[a]

a. An indicator of 9 has been temporarily set for SBAS (NMEA standard for SBAS not decided yet). This indicator can be customized using the GGAQUALITY command.

> ⓘ Refer to the BESTPOS command (*page 406*) and *Table 89, Supplemental Position Types and NMEA Equivalents* on *page 411*.