

MLR protocol (01/2001)

Tracklog output

The serial port is originally set to 4800bps, 1 stop, 8 data, no parity (NMEA 4800bps).

To start transfer of the tracklog, send the following sentence:

\$PMLR,24,02,0100,0398[CR][LF] start transfer at 19200bps.

\$PMLR,24,02,0101,0399[CR][LF] start transfer at 38400bps.

Transfer is done at the requested speed (19200 or 38400 bps), 8 data, 1 stop, no parity and starts after a one second delay.

The transfer is continuous, to stop it, send the following sentence (at 4800 bps):

\$PMLR,06,00,02A9[CR][LF].

The format of the tracklog is the following:

Le format de la sortie série est le suivant :

- First sentence :
[**\$8B**][**cc**]T[**\$01**]DEBUT[**aa**][**bb**][**\$0D**][**\$0A**].
- One or more sentences (depending on the number of points in the tracklog) like :
[**\$8B**][**cc**]T[**\$01**][**\$00**][**dd**][**ee..ee**][**ff..ff**]...[**gg..gg**][**hh**][**ii**][**\$0D**][**\$0A**].
- Last sentence :
[**\$8B**][**cc**]T[**\$01**]FIN[**jj**][**kk**][**\$0D**][**\$0A**].

[**\$xx**] = hexadecimal value of the byte, Example : ASCII letter 'A' = [**\$41**].

[**aa**] or [**hh**] or [**jj**] = MSB of the checksum.

[**bb**] ou [**ii**] ou [**kk**] = LSB of the checksum.

The checksum is the sum (modulo 65536) of all bytes before the checksum.

[**cc**] = sentence number (modulo 256). This number start at 1 for the first sentence, and is then incremented for each new sentence.

[**dd**] = number of points in the sentence (between 1 and 27).

[**ee..ee**] or [**ff..ff**] or [**gg..gg**] = one point in the tracklog defined by :

- 2 bytes for the point number in the tracklog (between 1 and 65535).
- 4 bytes for the timestamp (number of seconds since midnight on January the 6th 1980 **GMT**).
- 4 bytes for the latitude (map datum is WGS84), MSB first. To get the degree value, multiply by 360 and divide by 2³².
- 4 bytes for the longitude (same format as latitude).
- 3 bytes for the altitude (mean sea level). Divide by 10 to get the altitude in meters.
- 1 byte for the flags : \$00 = normal, \$01 = start of recording

Example : Tracklog with only 2 points :

[\$8B][\$01]T[\$01]DEBUT[\$02][\$55][\$0D][\$0A]

[\$8B][\$02]T[\$01][\$00][\$02]

[\$00][\$01][\$26][\$7B][\$8C][\$E0][\$21][\$6C][\$16][\$C1][\$FF][\$49][\$F4][\$9F][\$00][\$03][\$20][\$00]

Point #1 : 47°N, 1°W, 80 m, June 21 2000 at 14:00:00 GMT.

47°N = $47 / 360 * 2^{32} = 560731841 = \$216C16C1$.

1°W = $359 / 360 * 2^{32} = 4283036831 = \$FF49F49F$.

June 21 2000 at 14:00:00 GMT = \$267B8CE0.

80 m = 800 dm = \$000320.

[\$00][\$02][\$26][\$7B][\$8C][\$E5][\$21][\$6C][\$1E][\$86][\$FF][\$49][\$EE][\$69][\$00][\$03][\$25][\$00]

Point #2 : 47°00.010'N, 1°00.008'W, 80.5 m, June 21 2000 at 14:00:05 GMT.

47°00.010'N = $(47 + 10 / 60000) / 360 * 2^{32} = 560733830 = \$216C1E86$.

1°00.008'W = $358.59.992' = (358 + 59.992 / 60) / 360 * 2^{32} = 4283035241 = \$FF49EE69$.

June 21 2000 at 14:00:05 GMT = \$267B8CE5.

80.5 m = 805 dm = \$000325.

[\$0D][\$60][\$0D][\$0A]

[\$8B][\$03]T[\$01]FIN[\$01][\$C0][\$0D][\$0A]

Serial number request

To request transfer of the serial number of the unit, send the following sentence at NMEA 4800bps (1 stop, 8 data, no parity):

\$PMLR,26,01,01,0339[CR][LF].

The serial number is then transmitted continuously at the same speed with the following format :

\$PMLR, IDGPS, 01, aaaaaa, bbbbbbbbb, ccccccccc, d. ddeeeeeeff/ff/ff*gg[CR][LF].

Where :

[aaaaaa] = model type

[bbbbbbbb] = name entered by the user in the GPS (9 chars).

[cccccccc] = serial number (10 chars).

[d.dd] = software version.

[eeeeeee] = language and options (7 chars).

[ff/ff/ff] = software revision date day/month/year.

[gg] = checksum (NMEA 183 compliant)

To stop the continuous transmission of the serial number, send the following sentence:

\$PMLR,06,00,02A9[CR][LF].