Ea - Position/Status/Data Message

This input command sets the rate that the position/status/data information in the response message is output. The mode parameter (m) in the input message instructs the GPS receiver to either output this message one time (polled), or to output this message at the indicated update rate (continuously). Once the GPs receiver is set to continuous output, the continuous message flow can be stopped by sending a one-time output request. The GPs receiver will output the message one more time, then terminate any further message outputs.

The state of the rate bytes is stored in RAM. If the GPs receiver was continuously outputting the position/status/data output when turned off and backup power is applied, then it will begin to output this message continuously (at the selected update rate) again when the main power is reapplied. If backup power is not applied during power down,then the GPs receiver will start up in polled only mode.

The position/status/data output is explained in the response message section. Refer to **Date**, **Time of Day**, **Latitude**, **Longitude**, and **Height** for more details on the formats of these parameters. Refer to the glossary for definitions of the DOP values.

The number of satellites visible is computed using the current date, time, position, almanac, and a mask angle of zero degrees, representing the horizon. The receiver will attempt to track the eight satellites that are highest in the sky. If a current almanac is unavailable, this number will be zero. This condition will not prevent satellites from being tracked.

In order for a satellite to be used for positioning, the satellite mode must reach eight, indicating that the ephemeris for that satellite has been acquired. Once the ephemeris is available, the satellite can be used for positioning in modes five through eight.

NOTE: United States export laws prohibit GPs receivers from outputting valid data if the altitude is greater than 18,000 meters and the velocity is greater than 514 meters per second. If the GPs receiver is used above both these limits, the height and velocity outputs are clamped to the maximum values. In addition, the latitude and longitude data will be incorrect.

Default: Polled

Input Command

- Set response message rate:

  @@EamC<CR><LF>

  m   - mode   0 = output response message once (polled)

                      1 .. 255 = response message output
                      at indicated rate (continuous)

                      1 = once per second

                      2 = once every two seconds

                      255 = once every 255 seconds

  C   - checksum

  Message length: 8 bytes

Response Message

- (to either command)

@@Eamdyyhmsffffaaaaoooohhhhmmmmvvhhddtntimsdimsd

imsdimsdimsdimsdimsdimsdsC<CR><LF>

Date

m	- month	1 .. 12
d	- day	1 .. 31
yy	- year	1980 .. 2079

Time

h	- hours	0 .. 23
m	- minutes	0 .. 59
s	- seconds	0 .. 60
ffff	- fractional second	0 .. 999,999,999
	(0.0 .. 0.999999999)	

Position

aaaa	- latitude in mas	-324,000,000 .. 324,000,000
	(-90 degrees .. 90 degrees)	
oooo	- longitude in mas	-648,000,000 .. 648,000,000
	(-180 degrees .. 180 degrees)	
hhhh	- ellipsoid height in cm	-100,000 .. 1,800,000
	(-1000.00 .. 18,000.00m)*	
mmmm	- not used	0

Velocity

vv	- velocity in cm/s	0 .. 51,400 (0 .. 514.00 m/s)*
hh	- heading	0 .. 3599 (0.0 .. 359.9 degrees)
	(true north res 0.1 degrees)	

Geometry

dd	- current DOP (0.1 res)	0 .. 999 (0.0 to 99.9 DOP)
	(0 = not computable, position-hold, or position propagate)	
t	- DOP TYPE	
	0 PDOP (3D)/antenna ok	

1 PDOP (3D)/antenna OK

   64 PDOP (3D)/antenna shorted

   65 PDOP (3D)/antenna shorted

  128 PDOP (3D)/antenna open

  129 PDOP (3D)/antenna open

  192 PDOP (3D)/antenna shorted

  193 PDOP (3D)/antenna shorted

Satellite visibility and tracking status

n   - num of visible sats   0 .. 12

t   - num of satellites tracked 0 .. 8

For each of eight receiver channels

i   - sat ID   0 .. 37

m   - channel tracking mode   0 .. 8

        0 = code search   5 = message sync detect

        1 = code acquire   6 = satellite time avail.

        2 = AGC set   7 = ephemeris acquire

        3 = prep acquire   8 = avail for position

        4 = bit sync detect

s   - carrier to noise density ratio

        (C/No)   0 .. 255 db-Hz

d   - channel status flag

        Each bit represents one of the following:

        (msb)   Bit 7: using for position fix

                Bit 6: satellite momentum alert flag

                Bit 5: satellite anti-spoof flag set

                Bit 4: satellite reported unhealthy

                Bit 3: satellite reported inaccurate

                        (> 16m)

                Bit 2: spare

                Bit 1: spare

        (lsb)   Bit 0: parity error

End of channel dependent data

s   - receiver status flag

Each bit represents one of the following:

(msb)   Bit 7: position propagate mode

Bit 6: poor geometry (DOP > 12)

Bit 5: 3D fix

Bit 4: 2D fix

Bit 3: acquiring satellites/position

hold

Bit 2: spare

Bit 1: insufficient visible satellites

(< 3)

(lsb)   Bit 0: bad almanac

C - checksum

Message length: 76 bytes

*The upper limit of one of these two ranges may be exceeded as long as the other is below the limit as described in the note in the description above.