

OEMV QUICK REFERENCE GUIDE

Precise thinking

NovAtel Format Commands

Command	Syntax and Example Input(s)	ID	Tag	Description
ADJUST1PPS	adjust1pps mode [period] [offset] adjust1pps mark	429	V123	Adjust receiver clock or transfer time between receivers
ANTENNA-MODEL	antennamodel name SN setupID type [L1 offset] [L1 var] [L2 offset] [L2 var] antennamodel 702gg nae07070025 3 user	841	V123	Enter or change a rover antenna model, see also the command: BASEANTENNAMODEL
ANTENNA-POWER	antennapower flag antennapower on	98	V23	Enable/disable power from receiver's internal power source to the low-noise amplifier of an active antenna

Command	Syntax and Example Input(s)	ID	Tag	Description
ASSIGN	assign channel [state] prn [Doppler [window]] assign 11,28,-250,0 <i>(sv channel 11 is acquiring satellite prn 28 at an offset of 250 hz only)</i> <i>(prn 1 to 32 for gps channels, 38 to 61 for glonass, and 120 to 138 for sbas)</i>	27	V123	Aids in initial acquisition of a satellite by allowing you to override the automatic satellite/channel assignment reacquisition processes
ASSIGNALL	assignall [system] [state] prn [Doppler [window]] assignall gps1112,28,-250,0 <i>(I1 and I2 dedicated sv channels trying to acquire satellite prn 28 at -250 hz)</i>	28	V123	This command works the same way as ASSIGN except that it affects all SV channels

Command	Syntax and Example Input(s)	ID	Tag	Description
ASSIGN-LBAND	assignlband mode freq baud assignlband cdgps 1547547 4800 <i>or</i> assignlband omnistar 1536782 1200	729	V3_HP V13_VBS V13_CDGPS	The receiver searches for a specified L-Band satellite at a specified frequency with a specified baud rate
AUTH	auth [state] part1 part2 part3 part4 part5 model [date] auth add 1234 5678 9abc def0 1234 oemv1112 990131	49	V123	Add or remove authorization codes from the receiver
BASE-ANTENNA-MODEL	antennamodel name SN setupID type [L1 offset] [L1 var] [L2 offset] [L2 var] antennamodel nvh05410007 1 user	870	V123	Enter or change a base antenna model. For the rover, see the ANTENNAMODEL command

Command	Syntax and Example Input(s)	ID	Tag	Description
CDGPS-TIMEOUT	cdgps mode [delay] cdgpstimeout set 60 <i>(the auto default is 120 s)</i>	850	V13_CDGPS	Set amount of time receiver remains in CDGPS position if it stops receiving CDGPS
CLOCK-ADJUST	clockadjust switch clockadjust disable	15	V123	Enable/disable receiver clock steering
CLOCK-CALIBRATE	clockcalibrate mode [period] [width] [slope] [bandwidth] clockcalibrate auto	430	V123	Adjust the control parameters of the clock steering loop
CLOCK-OFFSET	clockoffset offset clockoffset -15	596	V123	Remove a delay in the PPS output
CNOUPDATE	cnoupdate rate cnoupdate 20hz	849	V123	C/No update rate and resolution
COM	com [port] bps [parity [databits [stopbits [handshake [echo[break]]]]]] com com1 57600 n 8 1 n off on	4	V123	Configure the receiver asynchronous serial port drivers

Command	Syntax and Example Input(s)	ID	Tag	Description
COM-CONTROL	comcontrol port signal control comcontrol com2 rts default	431	V123	Control the hardware control lines of the RS232 ports
CSMOOTH	csmooth L1time [L2time] csmooth 500	269	V123	Set carrier smoothing on code measurements
DATUM	datum datum datum csrs	160	V123	Select a datum
DGPSEPH-DELAY	dgpsephdelay delay dgpsephdelay 120	142	V123_DGPS	Set base station ephemeris delay
DGPSTIME-OUT	dgpstimeout delay dgpstimeout 60	127	V123_DGPS	Set rover station max. age of pseudorange differential data
DGPSTXID	dgpstxid type ID dgpstxid rtcn 2 dgpstxid rtca d36 dgpstxid rtcnv3 2050 dgpstxid cmr 30	144	V123_DGPS	Set station ID value for the receiver when it is transmitting corrections

Command	Syntax and Example Input(s)	ID	Tag	Description
DYNAMICS	dynamics dynamics dynamics foot	258	V123	Adjust receiver to match environment
ECUTOFF	ecutoff angle ecutoff 10.0	50	V123	Set elevation cut-off angle for satellites
EXTERNAL-CLOCK	externalclock clocktype [freq] [h0[h-1[h-2]]] externalclock tcxo 5mhz	230	V23	Allow OEMV to operate with an optional external oscillator
FIX	fix type [param1 [param2 [param3]]] fix height 4.567	44	V123	Fix parameters such as height or position
FIXPOS-DATUM	fixposdatum datum [lat [lon [height]]] fixposdatum user 51.11633810554 -114.03839550586 1048.2343	761	V123	Set position by referencing parameters through a specified datum
FORCE-GPSL2CODE	forcegpsl2code L2type forcegpsl2code p	796	V23_L2C	Force receiver to track L2 P or L2C code

Command	Syntax and Example Input(s)	ID	Tag	Description
FREQUENCY-OUT	<pre>frequencyout [switch] [pulsewidth] [period] frequencyout enable 2 4 <i>(to generate a 50% duty cycle 10 mhz square wave)</i></pre>	232	V123	Set output pulse train available on the VARF pin (variable frequency)
FRESET	<pre>freset [target] freset command</pre>	20	V123	Clear data which is stored in non-volatile memory
GGA-QUALITY	<pre>ggaquality [#entries] [pos type1] [qual1] [pos type2] [qual2]... ggaquality 2 waas 2 narrow_float 3</pre>	691	V123_NMEA	Customize NMEA GPGGA GPS quality indicator
GLO-CSMOOTH	<pre>glocsmooth L1time [L2time] glocsmooth 200</pre>	830	V1G23_G	Carrier smoothing for GLONASS channels

Command	Syntax and Example Input(s)	ID	Tag	Description
GLO-ECUTOFF	gloecutoff angle gloecutoff 15.0	735	V1G23_G	Set elevation cut-off angle for tracked GLONASS satellites
HPSEED	hpseed reset lat lon hgt lat σ lon σ hgt σ datum undulation hpseed restore	782	V3_HP	Specify initial position for OmniSTAR HP/XP
HPSTATIC-INIT	hpstaticinit switch hpstaticinit enable <i>(if hp/XP detects that the receiver is stationary, it can converge more quickly)</i>	780	V3_HP	Static initialization of OmniSTAR HP/XP
INTERFACE-MODE	interfacemode [port] rxtype txtype [responses] interfacemode com1 rtca novatel on	3	V123	Specify what type of data a particular port on the receiver can transmit and receive

Command	Syntax and Example Input(s)	ID	Tag	Description
LOCKOUT	lockout prn lockout 8 <i>(prn 1 to 32 for gps channels, 38 to 61 for glonass, and 120 to 138 for sbas)</i>	137	V123	Prevent receiver from using a satellite by de-weighting its range in the solution
LOG	log [port] message [trigger [period[offset [hold]]]] log com1 bestposa ontime 7 2.5 hold	1	V123	Log data using several different methods of triggering the log events
MAGVAR	magvar type [correction [stddev]] magvar correction 15 0	180	V123	Navigate in agreement with magnetic compass bearings
MARK-CONTROL	markcontrol signal switch [polarity] [timebias [timeguard]] markcontrol mark1 enable negative 50 100	614	V123	Control processing of mark 1 (MK1I) and mark 2 (MK2I) inputs

Command	Syntax and Example Input(s)	ID	Tag	Description
MODEL	model model model rt2w	22	V123	Switch receiver models previously added with the AUTH command
MOVING-BASE-STATION	movingbasestation switch movingbasestation enable	763	V123_RT20 V23_RT2	Enable a receiver from transmitting corrections without a fixed position
NMEA-TALKER	nmeatalker ID nmeatalker gp	861	V123	Set NMEA talker ID: gp (GPS only) or auto (GPS, GLO or inertial) ^a
NVM-RESTORE	nvmrestore nvmrestore	197	V123	Restore non-volatile memory (NVM)
PASSTO-PASSMODE	passtopassmode switch [measmth] [corsmth] [deweight] [scale] passtopassmode enable on off	601	V123_DGPS V13_VBS	Enable/disable different solution smoothing modes when using DGPS or OmniSTAR VBS corrections

Command	Syntax and Example Input(s)	ID	Tag	Description
POSAVE	posave [state] maxt [maxhstd [maxvstd]] posave 24 1 2	173	V123_DGPS	Implement base station position averaging
POS-TIMEOUT	postimeout sec postimeout 1200	612	V123	Set the time out value for the position calculation(s)
PPS-CONTROL	ppscontrol switch [polarity] [rate] ppscontrol enable positive 0.5	613	V123	Control OEMV polarity and rate of PPS output
PSRDIFF-SOURCE	psrdiffsource type ID rtksource rtkcm any psrdiffsource rtkcm any sbascontrol enable auto <i>(to enable rtk and psrdiff from rtkcm, with an sbas fall-back)</i>	493	V123_DGPS	Identify from which base station to accept differential corrections
RESET	reset [delay] reset 120	18	V123	Perform a hardware reset

Command	Syntax and Example Input(s)	ID	Tag	Description
RTK-ANTENNA	rtkantenna posref [pcv] rtkantenna arp enable	858	V123_RT20 V23_RT2	Use L1PC or ARP and enable/disable phase centre (PC) modelling
RTK-COMMAND	rtkcommand action rtkcommand use_defaults	97	V123_RT20 V23_RT2	Reset RTK filter and clear any set RTK parameters
RTK-DYNAMICS	rtkdynamics mode rtkdynamics dynamic	183	V123_RT20 V23_RT2	Specify how receiver looks at the data: static, auto, or dynamic
RTK-SOURCE	rtksource type ID rtksource rtkcm any	494	V123_RT20 V23_RT2 V3_HP	Identify from which base station to accept RTK corrections
RTKSV-ENTRIES	rtksventries number rtksventries 7 <i>(this command only works with rtcaobs and rtcaobs2)</i>	92	V123_RT20 V23_RT2 V3_HP	Set # of satellites to be transmitted in the RTK corrections from a base station receiver

Command	Syntax and Example Input(s)	ID	Tag	Description
SAVECONFIG	saveconfig <i>(in cdu, ensure you have all windows, other than the console window, closed before using this command)</i>	19	V123	Save present configuration in NVM
SBAS-CONTROL	sbascontrol keyword [system] [prn] [testmode] sbascontrol enable waas 0 zerototwo	652	V123_SBAS	Set handling of SBAS corrections
SEND	send port data send com1 "log com1 rtcaobs ontime 5"	177	V123	Send ASCII printable data from a COM\USB port to a specified port
SENDHEX	sendhex port length data sendhex com1 6 143ab5910d0a	178	V123	Send non-printable characters expressed as hexadecimal pairs
SETAPPROX-POS	setapproxpos lat lon height setapproxpos 51.116 -114.038 0	377	V123	Set an approximate latitude, longitude, and height in the receiver

Command	Syntax and Example Input(s)	ID	Tag	Description
SETAPPROX-TIME	setapproxtime week sec	102	V123	Set an approximate time in the receiver
SETNAV	setnav from-lat from-lon to-lat to-lon track offset from-point to-point setnav 51.1516 -114.16263 51.16263 -114.1516 -125.23 start finish	162	V123	Enter a set of navigation waypoints
SETRTCM16	setrtcm16 text setrtcm16 "base station will shut down in 1 hour"	131	V123_DGPS	Transfer ACCII text from a base to a rover
SETRTCM36	setrtcm36 extdtext setrtcm36 "quick \d166\d146\d174\d144\d140"	880	V1G23_G	Enter ASCII text that includes Cyrillic or Russian characters. Eg.: "Quick ШТОРМ"

Command	Syntax and Example Input(s)	ID	Tag	Description
STATUS-CONFIG	statusconfig type word mask statusconfig set status 0028a51d	95	V123	Configure status mask fields in the RXSTATUSEVENT log
UNASSIGN	unassign channel unassign 11	29	V123	Cancel a previously issued ASSIGN command
UNASSIGN-ALL	unassignall [system] unassignall gps11	30	V123	Cancel previous ASSIGN commands for all SV channels
UNDULATION	undulation option [separation] undulation user -5.599999905 undulation table	214	V123	Enter a specific geoidal undulation value or use the internal table of geoidal undulations

Command	Syntax and Example Input(s)	ID	Tag	Description
UNLOCKOUT	unlockout prn unlockout 8 <i>(prn 1 to 32 for gps channels, 38 to 61 for glonass, and 120 to 138 for sbas)</i>	138	V123	Reinstate a previously locked out satellite
UNLOCKOUT-ALL	unlockoutall unlockoutall	139	V123	Reinstate all previously locked out satellites
UNLOG	unlog [port] datatype unlog com1 bestposa	36	V123	Remove a specific log request from system
UNLOGALL	unlogall [port] unlogall com2	38	V123	Disable all logs on the specified port only
USERDATUM	userdatum semimajor flattening dx dy dz rx ry rz scale userdatum 6378206.400 294.97869820000 -12.0000 147.0000 192.0000 0.0000 0.0000 0.0000 0.0000000000	78	V123	Enter customized ellipsoidal datum parameters

Command	Syntax and Example Input(s)	ID	Tag	Description
USEREXP-DATUM	<pre> userexpdatum semimajor flattening dx dy dz rx ry rz scale xvel yvel zvel xrvel yrvel zrvel scalev refdate userexpdatum 6378137.000 298.25722356280 0.000000000 0.000000000 0.000000000 0.000000000 0 0.000000000 0.000000000 0.000000000 0.000000000 0.000000000 0.000000000 0.0000 00000 0.000000000 0.000000000 0.000000000 0.000000000 </pre>	783	V123	Enter customized ellipsoidal expanded datum parameters
UTMZONE	<pre> utmzone command parameter utmzone set 10 </pre>	749	V123	Set UTM persistence, zone #, or meridian
WAAS-ECUTOFF	<pre> waasecutoff angle waasecutoff -2 </pre>	505	V123_SBAS	Set SBAS satellites' elevation cut-off angle

Command	Syntax and Example Input(s)	ID	Tag	Description
WAAS-TIMEOUT	waastimeout set [delay] waastimeout set 100 <i>(the auto default is 180 s)</i>	851	V123_SBAS	Set amount of time receiver remains in an SBAS position if it stops receiving SBAS

- a. Inertial only applies when using an inertial navigation system such as NovAtel's SPAN products. Please visit our website at www.novatel.com for more information.

NovAtel Format Logs

Log	Description and fields after header	ID	Tag	Recommended Input
ALMANAC	Current GPS almanac info #msgs, prn, week, seconds, ecc, ω , ω_0 , ω , mo, afo, afl, n, a, inc-angle, sv config, hlth-prn, hlth-alm, antspf, next prn...	73	V123	log almanaca onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
AVEPOS	Position averaging lat, lon, ht, lat σ , lon σ , hgt σ , posave, ave time, samples	172	V123	log aveposa onchanged
BESTPOS	Position data sol status, pos type, lat, lon, hgt, undulation, datum id#, lat σ , lon σ , hgt σ , stn id, diff_age, sol_age, #SV, #solnSV, #obs, #multi, rsrvd, ext sol stat, rsrvd, sig mask	42	V123	log bestposa ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
BESTUTM	Best available UTM data sol status, pos type, z#, zletter, northing, easting, hgt, undulation, datum id#, nσ, eσ, hgtσ, stn id, diff_age, sol_age, #SV, #solnSV, #obs, #multi, rsvrd, ext sol stat, rsvrd, sig mask	726	V123	log bestutma ontime 1
BESTVEL	Velocity data sol status, vel type, latency, age, hor spd, trk gnd, vert spd, rsvrd	99	V123	log bestvela ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
BESTXYZ	Cartesian coord pos p-solstat, p-type, p-x, p-y, p-z, p-x σ , p-y σ , p-z σ , v-solstat, v-type, v-x, v-y, v-z, v-x σ , v-y σ , v-z σ , stnid, v-latency, diff_age, sol_age, #SV, #solnSV, #obs, #multi, rsvrd, ext sol stat, rsvrd, sig mask	241	V123	log bestxyza ontime 1
BSLNXYZ	RTK XYZ baseline solstat, p-type, p-x, p-y, p-z, p-x σ , p-y σ , p-z σ , stnid, #SV, #solnSV, #obs, #multi, rsvrd, ext sol stat, rsvrd, sig mask	686	V123_RT20 V23_RT2 V3_HP	log bslnxyza onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
CLOCK-MODEL	Clock model matrices clockstat, reject, noiset, updatet, params[1x3], covdata[3x3], rangebias, rangebiasrate, change	16	V123	log clockmodela ontime 1
CLOCK-STEERING	Clock steering status source, steeringstate, period, pulsewidth, bandwidth, slope, offset, driftrate	26	V123	log clocksteeringa onchanged
CMRDATA-DESC	Base station description cmr header, battery, memory, rsrvd, l2, rsrvd, epoch, motion, rsrvd, reclength, short id, code, id length, long id	389	V123_RT20 V23_RT2	log cmrdatadesca ontime 10 5

Log	Description and fields after header	ID	Tag	Recommended Input
CMRDATA-OBS	Base station satellite obs cmr header, #sv, epoch, clock bias, clock offset, # obs, prn, codeflag, l1, l2, l1psr, l1carrier, l1s/no, l1slip, l2code, codetype, l2cvalid, l2pvalid, phasefull, rsrvd, l2roffset, l2coffset, l2s/no, l2slip, next prn...	390	V123_RT20 V23_RT2	log cmrdataobsa ontime 2
CMRDATA-REF	Base station pos cmr header, battery, memory, rsrvd, l2, rsrvd, epoch, motion, rsrvd, ecef-x, ant hgt, ecef-y, eoffset, ecef- z, noffset, posacc, rsrvd	391	V123_RT20 V23_RT2	log cmrdatarefa ontime 10

Log	Description and fields after header	ID	Tag	Recommended Input
CMRPLUS	CMR+ output message cmr header, stnid, pg, #pgs, data	717	V123_RT20 V23_RT2	log cmrplusa ontime 1
COM- CONFIG	Current COM port config #ports, port, baud, parity, databits, stopbits, handshake, echo, breaks, rxtype, txtype, response	317	V123	log comconfiga once
EXTRXHW- LEVELS	Extended receiver hardware levels sytem v, minos v, l-band v, 15 v, rsvrd, rsvrd, rsvrd, rsvrd, rsvrd, rsvrd	843	V3_G	log extrxhwlevels ontime 60

Log	Description and fields after header	ID	Tag	Recommended Input
GLO-ALMANAC	Decoded GLONASS almanac #recs, week, time ^a , slot, freq, sat type, health, tlambda n, lambda n, delta i, ecc, arg perigee, delta t, delta td, tau, next message...	718	V1G23_G	log gloalmanaca onchanged
GLOCLOCK	GLONASS clock information rsrvd, rsrvd, rsrvd, sat type, n4, tau gps, na, tau_c, b1, b2, kp	719	V1G23_G	log glocka ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
GLO-EPHEMERIS	GLONASS ephemeris data sloto, freqo, sat type, rsrvd, e week, e time, t offset, Nt, rsrvd, rsrvd, issue, health, posx, posy, posz, velx, vely, velz, ls accx, ls accy, ls accz, tau_n, delta_tau_n, gamma, tk, p, ft, age, flags	723	V1G23_G	log gloephemerisa onchanged
GLORAW-ALM	Raw GLONASS almanac week, time ^a , #recs, string, rsrvd, next rec...	720	V1G23_G	log glorawalma onchanged
GLORAW-EPHEM	Raw GLONASS ephemeris data sloto, freqo, sigchan, week, time ^a , #recs, string, rsrvd, next rec...	792	V1G23_G	log glorawephema onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
GLORAW-FRAME	Raw GLONASS frame data frame#, sloto, freqo, week, time ^a , frame decode, sigchan, #recs,string, rsrvd, next rec...	721	V1G23_G	log glorawframea onchanged
GLORAW-STRING	Raw GLONASS string data slot, freq, string, rsrvd	722	V1G23_G	log glorawstringa onchanged
GPSEPHMEM	GPS ephemeris data prn, tow, health, iodel, iode2, week, z week, toe, a, dn, m0, ecc, w, cuc, cus, crc, crs, cic, cis, i ₀ , i ⁰ , w ₀ , ω, iodc, toc, tgd, af0, af1, af2, as, n, ura	7	V123	log gpsephema onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
IONUTC	Ionospheric/UTC info a0, a1, a2, a3, b0, b1, b2, b3, utcwn, tot, a0, a1, wnlsf, dn, deltat ls, deltat lsf, rsrvd	8	V123	log ionutca onchanged
LBANDINFO	L-Band configuration info freq, baud, id, rsrvd, osn, vbssub, vbsexpwk, vbsexps, hpsub, hpexp week, hpexps, hpsub, mode	730	V13_VBS V3_HP V13_CDGPS	log lbandinfoa ontime 1
LBANDSTAT	L-Band status info freq, c/n ₀ , locktime, rsrvd, tracking, vbsstat, #bytes, #goodgps, #baddata, rsrvd, hpstat2, #byteshp, hpstat, rsrvd	731	V13_VBS V3_HP V13_CDGPS	log lbandstatsa ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
LOGLIST	A list of system logs #logs, port, message, message type, rsvrd, trigger, period, offset, hold, next log...	5	V123	log loglista once
MARKPOS MARK2POS	Position at mark (1 or 2) in event solstat, postype, lat, lon, hgt, undulation, datumid#, latσ, lonσ, hgtσ, stnid, diffage, solage, #SV, #solnSV, #obs, #multi, rsvrd, ext sol stat, rsvrd, sig mask	181 615	V123	log markposa onnew log mark2posa onnew
MARKTIME MARK2TIME	Time of mark (1 or 2) input event week, s, offset, offsetstd, utcoffset, status	231 616	V123	log marktimea onnew log mark2timea onnew

Log	Description and fields after header	ID	Tag	Recommended Input
MATCHED-POS	Time matched RTK pos solstat, postype, lat, lon, hgt, undulation, datumid#, lat σ , lon σ , hgt σ , stnid, rsvrd, #SV, #solnSV, #obs, #multi, rsvrd, ext sol stat, rsvrd, sig mask	96	V123_RT20 V12_RT2 V3_HP	log matchedposa onchanged
MATCHED-XYZ	Time matched RTK Cartesian pos p-solstat, postype, p-x, p-y, p-z, p-x σ , p-y σ , p-z σ , stnid, #SV, #solnSV, #obs, #multi, rsvrd, ext sol stat, rsvrd, sig mask	242	V123_RT20 V23_RT2 V3_HP	log matchedxyza onchanged
NAVIGATE	Navigation waypoint status solstat, ptype, vtype, navtype, dist, bearing, atrack, xtrack, eta wk, eta s	161	V123	log navigatea ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
OMNIHPPOS	OmniSTAR XP or HP pos data solstat, postype, lat, lon, hgt, undltn, datumid#, lat σ , lon σ , hgt σ , stnid, diff age, sol age, #SV, #solnSV, #obs, #multi, rsrvd, ext sol stat, rsrvd, sig mask	495	V3_HP	log omnihpposa ontime 1
OMNIVIS	OmniSTAR satellite visibility list valid?, #recs, link id, app flag, sat name, app week, app sec, freq, bit rate, service id, ellip dist, global elev, next rec...	860	V3_HP V13_VBS	log omnivisa ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
PASSAUX PASSCOMn (n=1,2,3) PASSUSBn (n=1,2,3)	Port pass-through logs to redirect data #bytes, data, next byte...	690 233- 235 607- 609	V123	log passauxa <i>or</i> log passcom3a <i>or</i> log passusb2a onchanged
PASSXCOMn (n=1,2)	Virtual pass-through logs redirect data <i>as passaux above</i>	405 to 406	V123	log passxcom1 onchanged
PORTSTATS	Port stats #ports, port, rx chars, tx chars, acc rx chars, dropped chars, interrupts, breaks, par err, fram err, overruns, next port...	72	V123	log portstata once

Log	Description and fields after header	ID	Tag	Recommended Input
PSRDOP	DOPs of current SVs gdop, pdop, hdop, htdop, tdop, cutoff, #prns, prn, next prn...	174	V123	log psrdopa onchanged
PSRPOS	Pseudorange position solstat, postype, lat, lon, hgt, undltn, datumid#, lat σ , long σ , hgt σ , stnid, diff age, sol age, #SV, #solnSV, #obs, #multi, rsvrd, ext sol stat, rsvrd, sig mask	47	V123	log psrposa ontime 1
PSRVEL	Pseudorange velocity solstat, vtype, latency, age, horspd, trkgnd, vertspd, rsvrd	100	V123	log psrvela ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
PSRXYZ	Pseudorange Cartesian position p-solstat, postype, p-x, p-y, p-z, p-x σ , p-y σ , p-z σ , v-solstat, v-type, v-x, v-y, v-z, v-x σ , v-y σ , v-z σ , stnid, v-latency, diff age, sol age, #SV, #solnSV, rsrvd, rsvrd, rsvrd, ext sol stat, rsvrd, sigmask	243	V123	log psrxyza ontime 1
RANGE	Satellite range info #obs, prn/slot ^b , glfreq, psr, psr std, adr, adr std, dopp, c/no, locktime, ch-tr-status, next obs...	43	V123	log rangea ontime 30
RANGECMP	Compressed RANGE log #obs, 1st range record, next obs...	140	V123	log rangecmpa ontime 10

Log	Description and fields after header	ID	Tag	Recommended Input
RANGE-GPSL1	L1 version of RANGE log #obs, prn, rsvrd, psr, psr std, adr, adr std, dopp, c/no, locktime, ch-tr-status, next obs...	631	V123	log rangegpsl1a ontime 30
RAWALM	Raw almanac refweek, refsecs, #subframes, svid, data, next subframe...	74	V123	log rawalma onchanged
RAWEPHEM	Raw ephemeris prn, refweek, refsecs, subframe1, subframe2, subframe3	41	V123	log rawephema onchanged
RAWGPS-SUBFRAME	Raw subframe data decode#, prn, subfr id, data, chan	25	V123	log rawgpssubframea onnew
RAWGPS-WORD	Raw navigation word prn, nav word	407	V123	log rawgpsworda onnew

Log	Description and fields after header	ID	Tag	Recommended Input
RAWLBAND-FRAME	Raw L-Band frame data frame#, channelcode, data	732	V13_CDGPS	log rawlbandframea onnew
RAWLBAND-PACKET	Raw L-Band data packet #recs, data	733	V13_VBS V3_HP	log rawlbandpacketa onnew
RAWWAAS-FRAME	Raw SBAS frame data decode#, prn, waas msg id, data, chan	287	V123_SBAS	log rawwaasframea onnew
REFSTATION	Ref. station pos and health status, x, y, z, health, stn type, stn id	175	V123_RT20 V3_RT2	log refstationa onchanged
RTCADATA1	Differential GPS corrections z-count, aeb, #prns, prn/slot ^b , rnge, iode, rnge rate, udre, next prn...	392	V123_DGPS	log rtcadata1a ontime 10 3

Log	Description and fields after header	ID	Tag	Recommended Input
RTCADATA-EPHEM	Ephemeris and time info des, subtype, week, sec, prn/slot ^b , rsvrd, raw data	393	V123_DGPS	log rtcadataephema ontime 10 7
RTCADATA-OBS	Base station observations des, subtype, min psr, sec, rsrvd, #prns, trans id, l1 lock, l2 lock, l1 psr off, l2 psr off, l1 adr off, l2 adr off, l2 encrypt, rsvrd, next id...	394	V123_RT20 V23_RT2	log rtcadataobsa ontime 2
RTCADATA2-OBS	Base station observations des, subtype, gpstimebias, sec, rsvrd, #prns, trans id, l1 lock, l2 lock, l1 psr off, l2 psr off, l1 adr off, l2 adr off, l2 encrypt, rsvrd, next id...	808	V123_RT20 V23_RT2	log rtcadata2obsa ontime 2

Log	Description and fields after header	ID	Tag	Recommended Input
RTCADATA-REF	Base station parameters des, subtype, x pos, y pos, z pos, rsrvd	395	V123_RT20 V23_RT2	log rtcadatarefa ontime 10
RTCM-DATA1001	L1 GPS RTK observables rtcmv3 header ^c , #prns, prn#, code ind, psr, phase-psdo, locktime ind, next prn...	784	V123_RT20 V23_RT2	log rtcmdata1001a ontime 10 3
RTCM-DATA1002	Extended L1 GPS RTK obs rtcmv3 header ^c , #prns, prn#, code ind, psr, phase-psdo, locktime ind, amb, cnr, next prn...	785	V123_RT20 V23_RT2	log rtcmdata1002a ontime 7

Log	Description and fields after header	ID	Tag	Recommended Input
RTCM- DATA1003	L1/L2 GPS RTK observables rtcmv3 header ^c , #prns, prn#, l1 code ind, l1 psr, l1 phase-psdo, l1 locktime ind, l2 code ind, l1l2 psr diff, l2 phase l1 psdo, l1l2 locktime ind, next prn...	786	V123_RT20 V23_RT2	log rtcmdata1003a ontime 7

Log	Description and fields after header	ID	Tag	Recommended Input
RTCM-DATA1004	Extended L1/L2 GPS RTK obs rtcmv3 header ^c , #prns, prn#, l1 code ind, l1 psr, l1 phase psdo, l1 locktime ind, l1 amb, l1 cnr, l2 code ind, l1l2 psr diff, l2 phase l1 psdo, locktime ind, l2 cnr, next prn...	787	V123_RT20 V23_RT2	log rtcmdata1004a ontime 7
RTCM-DATA1005	RTK base station ARP msg#, base id, rsvrd, gps ind, glo ind, gal ind, rsrvd, ecef-x, rsvrd, ecef-y, rsvrd, ecef-z	788	V123_RT20 V23_RT2	log rtcmdata1005a ontime 3

Log	Description and fields after header	ID	Tag	Recommended Input
RTCM-DATA1006	RTK base ARP/antenna height msg#, base id, rsrvd, gps ind, glo ind, gal ind, rsrvd, ecef-x, rsrvd, ecef-y, rsrvd, ecef-z, antenna hgt	789	V123_RT20 V23_RT2	log rtcmdata1006a ontime 3
RTCM-DATA1	Differential GPS corrections rtcm header ^d , #prns, scale, udre, prn/slot ^b , psr corr, rate corr, iod, next prn...	396	V123_DGPS	log rtcmdata1a ontime 10 3
RTCM-DATA3	Base station parameters rtcm header ^d , ecef-x, ecef-y, ecef-z	402	V123_RT20 V23_RT2	log rtcmdata3a ontime 10

Log	Description and fields after header	ID	Tag	Recommended Input
RTCM-DATA9	Partial DGPS corrections rtcm header ^d , #prns, scale, udre, prn/slot ^b , psr corr, rate corr, iod, next prn...	404	V23_DGPS	log rtcmdata9a ontime 10
RTCM-DATA15	Ionospheric corrections rtcm header ^d , #prns, rsrvd, sat type, prn/slot ^b , ion delay, ion rate, next prn...	397	V123_DGPS	log rtcmdata15a ontime 10
RTCM-DATA16	Special message rtcm header ^d , #chars, character, next char...	398	V123_DGPS	log rtcmdata16a once

Log	Description and fields after header	ID	Tag	Recommended Input
RTCM-DATA1819	Raw measurements rtcm header ^d for rtcm18, freq, rsvrd, gnss time, #rtcm18obs, multi bit, code, sat type, prn/slot ^b , quality, continuity, phase, next rtcm18obs,..., rtcm header for rtcm19, freq, smoothing, gnss time, #rtcm19obs,multi bit, code, sat type, prn/slot ^b ,quality, multipath, range, next rtcm19obs...	399	V123_RT20 V23_RT2	log rtcmdata1819a ontime 2

Log	Description and fields after header	ID	Tag	Recommended Input
RTCM DATA-2021	Measurement corrections rtcm header ^d for rtcm20, freq, rsvrd, gnss time, #rtcm20obs, multi bit, code, sat type, prn/slot ^b , quality, continuity, iode, phase, next rtcm20obs,..., rtcm header for rtcm21, freq, rsvrd, gnss time, #rtcm21obs, rate scale, code, sat type, prn/slot ^b , corr scale, quality, multipath, iode, range corr, range rate, next rtcm21obs...	400	V123_RT20 V23_RT2	log rtcmdata2021a ontime 10

Log	Description and fields after header	ID	Tag	Recommended Input
RTCM-DATA22	Extended base station rtcm header ^d , 11 ecef-x, 11 ecef-y, 11 ecef-z, rsrvd, height stat, phase center, 12 ecef-x, 12 ecef-y, 12 ecef-z	401	V123_RT20 V23_RT2	log rtcmdata22a ontime 10
RTCM-DATA23	Antenna type definition record rtcm header ^d , rsrvd, ARP, ser flag, #chars, ant descrp, setup id, rsrvd, #chars2, ant ser#	663	V123_RT20 V23_RT2	log rtcmdata23a ontime 5
RTCM-DATA24	Antenna reference point parameters rtcm header ^d , ecef-x, rsrvd, ecef-y, rsrvd, ecef-z, sys ind, ant flag, ant ht, rsrvd	664	V123_RT20 V23_RT2	log rtcmdata24a ontime 5

Log	Description and fields after header	ID	Tag	Recommended Input
RTCM-DATA31	GLONASS differential corrections rtcm header ^d , #recs, scale, udre, prn, cor, cor rate, change, tod, next rec...	868	V1G23_G & V123_RT20 V23_RT2	log rtcmdata31a ontime 2
RTCM-DATA32	GLONASS base station parameters rtcm header ^d , ecef-x, ecef-y, ecef-z	878	V1G23_G & V123_RT20 V23_RT2	log rtcmdata32a ontime 2
RTCM-DATA36	Special extended message rtcm header ^d , #chars, character, next char...	879	V1G23_G	log rtcmdata36a once
RTCM-DATA59	Type 59N-0 NovAtel RT20 rtcm header ^d , subtype, min psr, time offset, rsvrd, #prns, prn/slot ^b , lock, psr, adr, next prn...	403	V123_RT20 V23_RT2	log rtcmdata59a ontime 10

Log	Description and fields after header	ID	Tag	Recommended Input
RTCM-DATA59GLO	NovAtel proprietary GLONASS differential corrections rtcm header ^d , subtype, #recs, scale, udre, prn, cor, cor rate, change, tod, next rec...	905	V1G23_G & V123_DGPS	log rtcmdata31a ontime 2
RTKDATA	RTK specific info sol status, pos type, rtk info, #SV, #solnSV, #obs, #multi, rsrvd, ext sol stat, rsrvd, sig mask, search state, #lane, [c: 3x3], Δx , Δy , Δz , $x\sigma$, $y\sigma$, $z\sigma$, ref prn, #svs, prn/slot ^b , ambiguity type, residual, next sv...	215	V123_RT20 V23_RT2	log rtkdata onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
RTKPOS	RTK low latency pos data sol status, pos type, lat, lon, hgt, undulation, datum id#, lat σ , lon σ , hgt σ , stn id, diff age, sol age, #SV, #solnSV, #obs, #multi, rsvrd, ext sol stat, rsvrd, sig mask	141	V123_RT20 V23_RT2	log rtkposa ontime 1
RTKVEL	RTK velocity sol status, vel type, latency, age, hor spd, track over gnd, vert spd, rsvrd	216	V123_RT20 V23_RT2	log rtkvela ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
RTKXYZ	RTK Cartesian coord pos pos sol status, pos type, p-x, p-y, p-z, p-x σ , p-y σ , p-z σ , vel sol status, v-x, v-y, v-z, v-x σ , v-y σ , v-z σ , stn id, v latency, diff age, sol age, #SV, #solnSV, #obs, #multi, rsrvd, ext sol stat, rsrvd, sig mask	244	V123_RT20 V23_RT2	log rtkxyza ontime 1
RXCONFIG	Receiver config status embedded header, embedded msg, embedded crc, next embedded command...	128	V123	log rxconfiga once
RXHW-LEVELS	Receiver hardware levels temp, ant current, core v, supply v, rf v, internal lna v, rsrvd, rsrvd, lna v	195	V3	log rxhwlevelsa ontime 60

Log	Description and fields after header	ID	Tag	Recommended Input
RXSTATUS	Self-test status error, #stats, rxstat, rxstat pri, rxstat set, rxstat clear, aux1stat, aux1stat pri, aux1stat set, aux1stat clear, aux2stat, aux2stat pri, aux2stat set, aux2stat clear, aux3stat, aux3stat pri, aux3stat set, aux3stat clear, next stat...	93	V123	log rxstatusa onchanged
RXSTATUS- EVENT	Status event indicator status, bit pos, event, descrip	94	V123	log rxstatuseventa onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
SATVIS	Satellite visibility satellite visibility?, complete gps almanac?, #sats, prn/slot ^b , glofreq, health, elev, az, true dop, apparent dop, next sat...	48	V123	log satvisa ontime 60
SATXYZ	ECEF satellite Cartesian pos rsrvd, #sats, prn/slot ^b , x, y, z, clk corr, iono corr, tropo corr, rsrvd, rsrvd, next sat...	270	V123	log satxyza ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
TIME	Receiver time information clock status, offset, offset std, utc offset, utc year, utc month, utc day, utc hour, utc min, utc ms, utc status	101	V123	log timea ontime 1
TIMESYNC	Synchronize receiver times week, ms, time status	492	V123	log timesynca ontime 1
TRACKSTAT	Satellite tracking status sol status, pos type, ecutoff, #chans, prn/slot ^b , glofreq, ch-tr-status, psr, dop, cno, locktime, psr res, reject code, psr weight, next chan...	83	V123	log trackstata ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
VALID-MODELS	Receiver model/expiry date #mods, model, expyear, expmonth, expday, next mod...	206	V123	log validmodelsa once
VERSION	Receiver version numbers #components, type, model, psn, hw version, sw version, boot version, compile date, compile time, next component...	37	V123	log versiona once
WAAS0	Which PRN to remove from solution prn	290	V123_SBAS	log waas0a onchanged
WAAS1	PRN mask assignment prn, mask, iodp	291	V123_SBAS	log waas1a onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
WAAS2	Fast corrections slots 0-12 prn, iodf, iodp, prc0, prc1, prc2, prc3, prc4, prc5, prc6, prc7, prc8, prc9, prc10, prc11, prc12, udre0, udre1, udre2, udre3, udre4, udre5, udre6, udre7, udre8, udre9, udre10, udre11, udre12	296	V123_SBAS	log waas2a onchanged
WAAS3	Fast corrections slots 13-25 prn, iodf, iodp, prc13, prc14, prc15, prc16, prc17, prc18, prc19, prc20, prc21, prc22, prc23, prc24, prc25, udre13, udre14, udre15, udre16, udre17, udre18, udre19, udre20, udre21, udre22, udre23, udre24, udre25	301	V123_SBAS	log waas3a onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
WAAS4	Fast corrections slots 26-38 prn, iodf, iodp, prc26, prc27, prc28, prc29, prc30, prc31, prc32, prc33, prc34, prc35, prc36, prc37, prc38, udre26, udre27, udre28, udre29, udre30, udre31, udre32, udre33, udre34, udre35, udre36, udre37, udre38	302	V123_SBAS	log waas4a onchanged
WAAS5	Fast corrections slots 39-50 prn, iodf, iodp, prc39, prc40, prc41, prc42, prc43, prc44, prc45, prc46, prc47, prc48, prc49, prc50, prc21, udre39, udre40, udre41, udre42, udre43, udre44, udre45, udre46, udre47, udre48, udre49, udre50, udre51 (do not use)	303	V123_SBAS	log waas5a onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
WAAS6	Integrity message prn, iodf2, iodf3, iodf4, iodf5, udre0, udre1, udre2, udre3, udre4, udre5, udre6, udre7, udre8, udre9, udre10, udre11, udre12, udre13, udre14, udre15, udre16, udre17, udre18, udre19, udre20, udre21, udre22, udre23, udre24, udre25, udre26, udre27, udre28, udre29, udre30, udre31, udre32, udre33, udre34, udre35, udre36, udre37, udre38, udre39, udre40, udre41, udre42, udre43, udre44, udre45, udre46, udre47, udre48, udre49, udre50, udre51 (invalid)	304	V123_SBAS	log waas6a onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
WAAS7	Fast correction degradation prn, latency, iodp, spare bits, ai(0), ai(1), ai(2), ai(3), ai(4), ai(5), ai(6), ai(7), ai(8), ai(9), ai(10), ai(11), ai(12), ai(13), ai(14), ai(15), ai(16), ai(17), ai(18), ai(19), ai(20), ai(21), ai(22), ai(23), ai(24), ai(25), ai(26), ai(27), ai(28), ai(29), ai(30), ai(31), ai(32), ai(33), ai(34), ai(35), ai(36), ai(37), ai(38), ai(39), ai(40), ai(41), ai(42), ai(43), ai(44), ai(45), ai(46), ai(47), ai(48), ai(49), ai(50), ai(51) (invalid, do not use)	305	V123_SBAS	log waas7a onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
WAAS9	GEO navigation message prn, iodn, t ₀ , ura, x, y, z, xvel, yvel, zvel, xaccel, yaccel, zaccel, a _{f0} , a _{f1}	306	V123_SBAS	log waas9a onchanged
WAAS10	Degradation factor prn, b _{rcc} , c _{1tc_1sb} , c _{1tc_v1} , i _{1tc_v1} , c _{1tc_v0} , i _{1tc_v1} , c _{geo_1sb} , c _{geo_v} , i _{geo} , c _{er} , c _{iono_step} , i _{iono} , c _{iono_ramp} , rss _{udre} , rss _{iono} , spare bits	292	V123_SBAS	log waas10a onchanged
WAAS12	SBAS network time & UTC prn, a1, a0, seconds, week, dtls, wnlsf, dn, dtlsf, utcid, gpstow, gpswn, glo ind, rsvrd	293	V123_SBAS	log waas12a onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
WAAS17	GEO almanac message prn, #entries, data id, entry prn, health, x, y, z, x vel, y vel, z vel, next entry..., t ₀	294	V123_SBAS	log waas17a onchanged
WAAS18	IGP mask prn, #bands, band#, iodi, igp mask, spare bit	295	V123_SBAS	log waas18a onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
WAAS24	Mixed fast/slow corrections prn, prc0, prc1, prc2, prc3, prc4, pcr5, udre0, udre1, udre2, udre3, udre4, udre5, iodp, block id, iodf, spare, vel, mask1, iode1, dx1, dy1, dz1, da ^{f0} , mask2, iode2, ddx, ddy, ddz, da ^{f1} , t ₀ , iodp, corr spare	297	V123_SBAS	log waas24a onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
WAAS25	Long-term slow corrections source prn, 1st vel, 1st mask1, 1st iode1, 1st dx1, 1st dy1, 1st dz1, 1st da ^{f0} , 1st mask2, 1st iode2, 1st ddx, 1st ddy, 1st ddz, 1st da ^{f1} , 1st t ₀ , 1st iodp, 1st corr spare, 2nd vel, 2nd mask1, 2nd iode1, 2nd dx1, 2nd dy1, 2nd dz1, 2nd da ^{f0} , 2nd mask2, 2nd iode2, 2nd ddx, 2nd ddy, 2nd ddz, 2nd da ^{f1} , 2nd t ₀ , 2nd iodp, 2nd corr spare	298	V123_SBAS	log waas25a onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
WAAS26	iono-delay corrections prn, band#, block id, #pts, igp _{vde} , givei, next pt..., iode, spare	299	V123_SBAS	log waas26a onchanged
WAAS27	SBAS service message prn, iods, #messages, message#, priority code, dudre inside, #regs, lat1,lon1, lat2, lon2, shape,next reg..., t ₀	300	V123_SBAS	log waas27a onchanged
WAAS32 (CDGPS)	Fast correction slots 0-10 prn, iodp, prc0, prc1, prc2, prc3, prc4, prc5, prc6, prc7, prc8, prc9, prc10, udre0, udre1, udre2, udre3, udre4, udre5, udre6, udre7, udre8, udre9, udre10	696	V13_CDGPS	log waas32a onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
WAAS33 (CDGPS)	Fast correction slots 11-21 prn, iodp, prc11, prc12, prc13, prc14, prc15, prc16, prc17, prc18, prc19, prc20, prc21, udre11, udre12, udre13, udre14, udre15, udre16, udre17, udre18, udre19, udre20, udre21	697	V13_CDGPS	log waas33a onchanged
WAAS34 (CDGPS)	Fast correction slots 22-32 prc22, prc23, prc24, prc25, prc26, prc27, prc28, prc29, prc30, prc31, prc32, udre22, udre23, udre24, udre25, udre26, udre27, udre28, udre29, udre30, udre31, udre32	698	V13_CDGPS	log waas34a onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
WASS35 (CDGPS)	Fast correction slots 33-43 prc33,prc34,prc35,prc36, prc37,prc38,prc39,prc40, prc41,prc42,prc43,udre33, udre34,udre35,udre36,udre37, udre38,udre39,udre40,udre41, udre42, udre43	699	V13_CDGPS	log waas35a onchanged
WAAS45 (CDGPS)	Slow corrections prn, mask1, iode1, dx1, dy1, dz1, ddx, ddy, ddz, da ^{f0} 1, t ₀ 1, mask2, iode2, dx1, dy1, dz1, ddx, ddy, ddz, da ^{f0} 2, t ₀ 2, iodp	700	V13_CDGPS	log waas45a onchanged
WAASCORR	SBAS range corrections use #sats,prn, iode, psr corr, corr stdv,next sat...	313	V123_SBAS	log waascorra ontime 1

Log **Description and fields after header** **ID** **Tag** **Recommended Input**

NMEA Format Logs

GLMLA	GLONASS almanac data \$glmla, #alm, alm#, slot, N, hlth & freq, ecc, ΔTdot, ω, τ _{16msb} , ΔT, tλ, λ, Δi, τ _{121sb} , t	859	V1G23_G	log glmla onchanged
GPALM	Almanac data \$gpalm, #msgs, msg#, prn, gps wk, sv health, ecc, alm ref time, incl angle, omegadot, rt axis, omega, long asc node, m _o , a _{f0} , a _{f1} , next msg...	217	V123_NMEA	log gpalm onchanged

Log	Description and fields after header	ID	Tag	Recommended Input
GPGGA	GPS fix data and undulation \$gpgga, utc, lat, lat dir, lon, lon dir, gps qual, #sats, hdop, alt, alt units, undulation, undulation units, age, stn id	218	V123_NMEA	log gpgga ontime 1
GPGGA-LONG	Fix data and undulation with extra precision \$gpgga, utc, lat, lat dir, lon, lon dir, gps qual, #sats, hdop, alt, alt units, undulation, undulation units, age, stn id	521	V123_NMEA	log gpggalong ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
GPGGARTK	GPS fix data with extra precision \$gpgga, utc, lat, lat dir, lon, lon dir, gps qual, #sats, hdop, alt, alt units, rsrvd, rsrvd, age, stn id	259	V123_NMEA	log gpggartk ontime 1
GPGLL ^e	Geographic position - lat/lon \$gpgll, lat, lat dir, lon, lon dir, utc, data status	219	V123_NMEA	log gpgll ontime 1
GPGRS ^e	GPS range residuals for each satellite \$gpgrs, utc, mode, rsrvd, rsrvd, rsrvd, rsrvd, rsrvd, rsrvd, rsrvd, rsrvd, rsrvd, rsrvd, rsrvd, rsrvd	220	V123_NMEA	log gpgrs ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
GPGSA ^e	GPS DOP and active satellites \$gpgsa, mode man/auto, mode 123, prn, prn, prn, prn, prn, prn, prn, prn, prn, prn, prn, prn, pdop, hdop, vdop	221	V123_NMEA	log gpgsa ontime 1
GPGST ^e	Pseudorange measurement noise stats \$gpgst, utc, rms, smjr std, smnr std, orientation, lat std, lon std, alt std	222	V123_NMEA	log gpgst ontime 1
GPGSV ^e	GPS satellites in view \$gpgsv, #msgs, msg#, #sats, prn, elev, azimuth, snr, next sat...	223	V123_NMEA	log gpgsv ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
GPRMB ^e	Generic navigation info \$gprmb, data status, xtrack, dir, origin id, dest id, dest lat, lat dir, dest lon, lon dir, range, bearing, vel, arr status	224	V123_NMEA	log gprmb ontime 1
GPRMC ^e	GPS specific info \$gprmc, utc, pos status, lat, lat dir, lon, lon dir, speed kn, track true, date, mag var, mag var dir	225	V123_NMEA	log gprmc ontime 1
GPVTG ^e	Track made good and ground speed \$gpvtg, track true, t ind, track made good, m track ind, speed kn, n speed ind, speed km, k speed ind	226	V123_NMEA	log gpvtg ontime 1

Log	Description and fields after header	ID	Tag	Recommended Input
GPZDA	UTC time and date \$gpzda, utc, day, month, year, rsvrd, rsvrd	227	V123_NMEA	log gpzda ontime 1
RTCA Format Logs				
RTCA1	Type 1 differential GPS corrections	10	V123_DGPS	log com2 rtca1 ontime 10 3
RTCAEPHEM	Type 7 ephemeris information	347	V123_DGPS	log com2 rtcaephem ontime 10 7
RTCAOBS	Type 7 base station observations	6	V123_RT20 V23_RT2	log com2 rtcaobs ontime 2
RTCAOBS2	Type 7 base station observations 2	805	V123_RT20 V23_RT2	log com2 rtcaobs2 ontime 2
RTCAREF	Type 7 base station parameters	11	V123_RT20 V23_RT2	log com2 rtcaref ontime 10

Log **Description and fields after header** **ID** **Tag** **Recommended Input**

RTCMV3 Format Logs

RTCM1001	L1-Only GPS RTK Observables	772	V123_RT20 V23_RT2	log com2 rtcm1001 ontime 10
RTCM1002	Extended L1 GPS RTK Observables	774	V123_RT20 V23_RT2	log com2 rtcm1002 ontime 10
RTCM1003	L1/L2 GPS RTK Observables	776	V123_RT20 V23_RT2	log com2 rtcm1003 ontime 10
RTCM1004	Extended L1/L2 GPS RTK Observables	770	V123_RT20 V23_RT2	log com2 rtcm1004 ontime 10
RTCM1005	RTK Base Station ARP	765	V123_RT20 V23_RT2	log com2 rtcm1005 ontime 3
RTCM1006	RTK Base ARP & Antenna Height	768	V123_RT20 V23_RT2	log com2 rtcm1006 ontime 3

RTCM Format Logs

RTCM1	Type 1 differential GPS corrections	107	V123_DGPS	log com2 rtcm1 ontime 10
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Log	Description and fields after header	ID	Tag	Recommended Input
RTCM3	Type 3 base station parameters	117	V123_RT20 V23_RT2	log com2 rtc3 ontime 10
RTCM9	Type 9 partial differential corrections	275	V123_DGPS	log com2 rtc9 ontime 10
RTCM15	Type 15 ionospheric corrections	307	V123_DGPS	log com2 rtc15 ontime 10
RTCM16	Type16 special message	129	V123_DGPS	log com2 rtc16 onnew
RTCM16T	Type16T special message	131	V123_RT20 V23_RT2	log com2 rtc16t onnew
RTCM1819	Type18 and Type 19 raw measurements	260	V123_RT20 V23_RT2	log com2 rtc1819 ontime 2
RTCM2021	Type 20 and Type 21 measurement corrections	370	V123_RT20 V23_RT2	log com2 rtc2021 ontime 2
RTCM22	Type 22 extended base parameters	118	V123_RT20 V23_RT2	log com2 rtc22 ontime 10

Log	Description and fields after header	ID	Tag	Recommended Input
RTCM23	Type 23 antenna type definition record	665	V123_RT20 V23_RT2	log com2 rtcm23 ontime 5
RTCM24	Type 24 Antenna Reference Point (ARP) parameters	667	V123_RT20 V23_RT2	log com2 rtcm24 ontime 5
RTCM31	Type 31 GLONASS differential corrections	864	V1G23_G & V123_RT20 V23_RT2	log com2 rtcm31 ontime 2
RTCM32	Type 32 GLONASS base station parameters	873	V1G23_G & V123_RT20 V23_RT2	log com2 rtcm32 ontime 2
RTCM36	Type 36 special message	875	V1G23_G	log com2 rtcm36 onnew
RTCM36T	Type 36T special message	877	V1G23_G	log com2 rtcm36t onnew
RTCM59	Type 59N-0 NovAtel proprietary message: RT-20 differential obs	116	V123_RT20 V23_RT2	log com2 rtcm59 ontime 10
RTCM59GLO	Type 59GLO NovAtel proprietary GLONASS differential corrections	903	V1G23_G & V123_DGPS	log com2 rtcm59glo ontime 2

Log	Description and fields after header	ID	Tag	Recommended Input
CMR Format Logs				
CMRDESC	Base station description info	310	V123_RT20 V23_RT2	log com2 cmrdesc ontime 10 5
CMROBS	Base station satellite observation info	103	V123_RT20 V23_RT2	log com2 cmrobs ontime 2
CMRREF	Base station position info	105	V123_RT20 V23_RT2	log com2 cmrref ontime 10
CMRPLUS	CMR+ output message	717	V123_RT20 V23_RT2	log com1 cmrplusa ontime 1

- GPS Time, in milliseconds (binary data) or seconds (ASCII data)
- PRN 1 to 32 for GPS channels, 38 to 61 for GLONASS, and 120 to 138 for SBAS
- RTCM V3 header: msg#, base id, epoch, gnss flag, #sats, smthng indctr, smthng intrvl
- RTCM header: msg type, base id, z count week#, sequence#, frame length, base health
- If the NMEATALKER command is set to AUTO, the talker (the first 2 characters after the \$ in the log header) is set to GP (GPS satellites only), GL (GLONASS satellites only), or GN (both systems' satellites).

Tag Meanings

V123	Features available on OEMV-1, OEMV-2 or OEMV-3-based products. If a feature is not available on a card, its number is omitted, for example, V23, V13 or V3.
V123_RTK	Features available only with receivers equipped with the rt-20 option
V23_RT2	Features available only with receivers equipped with the RT-2 option
V123_DGPS	Feature used when operating in differential mode
V123_NMEA	National Marine Electronics Association format
V123_SBAS	SBAS messages available when tracking an SBAS satellite (refer to the <i>GPS+ Reference Manual</i>)
V3_HP	OmniSTAR high performance (HP), extra performance (XP) and virtual base station (VBS) available with an OmniSTAR subscription (refer to the <i>GPS+ Reference Manual</i>)
V13_VBS	OmniSTAR VBS available with an OmniSTAR subscription
V13_CDGPS	The free Canada-Wide Differential Global Positioning System (CDGPS) available without a subscription (refer to the <i>GPS+ Reference Manual</i>)
V1G23_G	GLONASS positioning available (refer to the <i>GPS+ Reference Manual</i>)
V3_G	Available only on OEMV-3-based products with the GLONASS option
V23_L2C	Capable of receiving the L2C signal (refer to the <i>GPS+ Reference Manual</i>)

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