

INNOVATUM SMARTRAK DATA OUTPUT STRING

Dated 12 February 2020

1. DESCRIPTION OF STRING

Data is output asynchronously at the end of each computation cycle (0.1 to 0.5 sees) as an ASCII string of 80 characters(operator selected) terminated by <CR> and <LF>.

Default RS232 parameters are 9600 baud, 8 bits, 1 stop bit and no parity. No hardware or software handshaking is implemented. It is strongly recommended that every single output string is logged for subsequent post-processing.

Characters	Description
1 - 2	Space characters (20h)
3 - 4	Day of month (1 to 31)
5	Space character (20h)
6 - 8	Month of year (first 3 letters)
9	Space character (20h)
10 - 13	Year (all 4 digits)
14 - 15	Hour of day (24 hour clock)
16	: character (3Ah)
17 - 18	Minutes of hour (0 to 59)
19	: character (3Ah)
20 - 21	Seconds of minute (0 to 59)
22 - 24	Relative heading (+ or -) in degrees i.e. vehicle heading minus target heading
25	Mode 1 = passive 2 = active DC 3 = active AC
26	Solution 0 = no signal 1 = valid direction only 2 = valid horizontal displacement only 3 = valid horizontal & vertical displacements

27 - 30	Signal strength & polarity (logarithmic scale)
31 - 33	Video overlay (percentage of horizontal displacement) i.e. -99 to +99 equals full left to full right
34 - 35	Video overlay (percentage of maximum depth) i.e. 00 to 99 equals minimum to maximum
36	Source type 0 = single 1 = complex
37 - 41	Horizontal displacement of target in metres (from centre of array to centre of target where -ve = target to left and +ve = target to right)
42 - 45	Probable maximum error of horizontal displacement in metres
46 - 49	Vertical displacement of target in metres (from Innovatum reference to centre of target)
50 - 53	Probable maximum error of vertical displacement in metres
54 - 58	Vertical displacement from skids to top of target in metres (equals "depth of bury" ONLY if vehicle skids are level with seabed)
	OR
	Burial ("depth of bury") in metres (ONLY if altimeter option is both installed and enabled)
59 - 64	In <i>passive</i> mode - total normalised radial magnetization of target. In <i>active</i> mode - estimated magnitude of current flowing in target. (in active DC mode, +ve indicates current flowing in same direction as vehicle heading)
65 - 69	Altitude in metres referenced to vehicle skids
70 - 72	Pitch angle (+ or -) in degrees
73 - 75	Roll angle (+ or -) in degrees

76 - 78	Absolute heading in degrees (from system's own fluxgate compass or from an external gyrocompass if interfaced and enabled)
79 - 80	Time split in 0.01 seconds if enabled (to be added to time of day if required)
81	<CR> character (0Dh)
82	<LF> character (0Ah)

A typical 80 character data string would therefore be as follows:

"16 May 198915:33:27 2 13-4.4-6 250-0.150.051.980.05 1.01 -5146 0.31 1 -5 47 00"

Date	= 16 May 1989
Time	= 15:33:27
Relative heading	= +2 degrees
Mode	= 1 (passive)
Solution	= 3 (valid horizontal and vertical displacements)
Signal strength	= -4.4
Horizontal overlay	= -6
Vertical overlay	= 25
Source type	= 0 (single)
Horizontal displacement	= -0.15 metres
Horizontal error	= +/- 0.05 metres
Vertical displacement	= 1.98 metres
Vertical error	= +/- 0.05 metres
Skids to top	= +1.01 metres
Magnetization	= -5146
Altitude	= +0.31 metres
Pitch	= +1 degree
Roll	= -5 degrees
Absolute heading	= 47 degrees
Time split	= 0.00 seconds