

Jussi Virkkala 19.10.2011 decoding sports-tracker.com HRM serial protocol

First data (35 bytes) after connection is different, seems always identical (with the same unit), could be some calibration?

250 140 115 1 83 84 32 72 82 77 44 48 49 48 49 44 49 49

Following data is always 17 bytes starting with 250 and ending with CRC-16 checksum

10:17:29 250 69 186 129 30 0 125 16 0 0 0 0 0 0 54 59

Sum of bytes 2 and 3 is always 255

10:17:30 250 70 185 129 30 0 0 0 0 0 0 0 0 0 168 1

Fourth byte is always 129

10:17:30 250 71 184 129 30 0 0 0 0 0 0 0 0 0 232 3

Fifth byte could be battery, decreasing slowly

10:17:32 250 68 187 129 30 0 125 16 0 0 0 0 0 0 118 57

Sixth is BPM with averaging and ranges about 56-168 thus 30 and 240 BPM are not shown

10:17:32 250 69 186 129 30 0 0 0 0 0 0 0 0 0 104 7

Raw RRIs are with 3 bytes, MSB first

10:17:33 250 70 185 129 30 0 125 16 0 0 0 0 0 0 246 61

$$8E+06 = 125 * 65536 * 16 * 256 + 0$$

Above BPM was 30 with calibrator thus 2000 ms

2009

With calibrator seems *0.00024506 to convert to ms

10:17:48 250 69 186 129 30 0 0 0 0 0 0 0 0 0 104 7

10:17:49 250 70 185 129 30 0 0 0 0 0 0 0 0 0 168 1

10:17:51 250 71 184 129 30 0 125 32 0 0 0 0 0 0 162 60

10:17:52 250 68 187 129 30 0 0 0 0 0 0 0 0 0 40 5

10:17:53 250 69 186 129 30 0 125 16 0 0 0 0 0 0 54 59

10:17:55 250 70 185 129 30 0 125 16 0 0 0 0 0 0 246 61

10:17:56 250 71 184 129 30 0 0 0 0 0 0 0 0 0 232 3

10:17:57 250 68 187 129 30 0 124 192 0 0 0 0 0 0 186 57

10:17:58 250 69 186 129 30 0 62 131 233 0 0 0 0 0 178 47

10:18:00 250 70 185 129 30 56 62 144 0 0 0 0 0 0 176 145

10:18:01 250 71 184 129 30 59 62 144 0 0 0 0 0 0 255 99

10:18:02 250 68 187 129 30 59 62 128 0 0 0 0 0 0 51 100

10:18:03 250 69 186 129 30 59 62 131 232 0 0 0 0 0 104 78

$$4E+06 = 62 * 65536 * 131 * 256 + 232$$

Above BPM was changed to 60 with calibrator thus 1000 ms

1004

10:18:05	250	70	185	129	30	59	62	128	0	0	0	0	0	0	0	179	96
10:18:06	250	71	184	129	30	59	62	128	0	0	0	0	0	0	0	243	98
10:18:07	250	68	187	129	30	59	62	131	232	0	0	0	0	0	0	40	76
10:18:09	250	69	186	129	30	59	62	128	0	0	0	0	0	0	0	115	102
10:18:10	250	70	185	129	30	59	62	128	0	0	0	0	0	0	0	179	96
10:18:11	250	71	184	129	30	59	62	128	0	0	0	0	0	0	0	243	98
10:18:12	250	68	187	129	30	59	62	131	232	0	0	0	0	0	0	40	76
10:18:14	250	69	186	129	30	59	62	128	0	0	0	0	0	0	0	115	102
10:18:15	250	70	185	129	30	59	62	128	0	0	0	0	0	0	0	179	96
10:18:16	250	71	184	129	30	59	62	131	232	0	0	0	0	0	0	232	74
10:18:18	250	68	187	129	30	59	62	128	0	0	0	0	0	0	0	51	100
10:18:19	250	69	186	129	30	59	62	128	0	0	0	0	0	0	0	115	102
10:18:20	250	70	185	129	30	59	62	128	0	0	0	0	0	0	0	179	96
10:18:21	250	71	184	129	30	59	62	131	232	0	0	0	0	0	0	232	74
10:18:23	250	68	187	129	30	59	62	128	0	0	0	0	0	0	0	51	100
10:18:24	250	69	186	129	30	59	62	128	0	0	0	0	0	0	0	115	102
10:18:25	250	70	185	129	30	59	62	131	232	0	0	0	0	0	0	168	72
10:18:27	250	71	184	129	30	59	62	128	0	0	0	0	0	0	0	243	98
10:18:28	250	68	187	129	30	59	62	128	0	0	0	0	0	0	0	51	100
10:18:29	250	69	186	129	30	59	62	128	0	0	0	0	0	0	0	115	102
10:18:30	250	70	185	129	30	59	62	131	232	0	0	0	0	0	0	168	72
10:18:32	250	71	184	129	30	59	62	128	0	0	0	0	0	0	0	243	98
10:18:33	250	68	187	129	30	59	62	128	0	0	0	0	0	0	0	51	100
10:18:34	250	69	186	129	30	59	62	128	0	0	0	0	0	0	0	115	102
10:18:35	250	70	185	129	30	59	62	131	232	0	0	0	0	0	0	168	72
10:18:37	250	71	184	129	30	59	62	128	0	0	0	0	0	0	0	243	98
10:18:38	250	68	187	129	30	60	61	1	244	0	0	0	0	0	0	122	189
10:18:39	250	69	186	129	30	60	31	49	243	31	48	0	0	0	0	36	8

2E+06 =31*65536*49*2 2E+06

Above BPM was changed to 120 with calibrator thus 500 ms

501 501

notice BPM is slowly increasing (averaging)

10:18:41	250	70	185	129	30	60	31	49	243	0	0	0	0	0	0	143	76
10:18:42	250	71	184	129	30	60	31	49	243	31	48	0	0	0	0	164	12
10:18:43	250	68	187	129	30	63	31	49	244	0	0	0	0	0	0	192	206
10:18:44	250	69	186	129	30	66	31	49	243	31	48	0	0	0	0	250	107
10:18:46	250	70	185	129	30	72	31	49	243	31	48	0	0	0	0	26	77
10:18:47	250	71	184	129	30	73	31	49	243	0	0	0	0	0	0	244	92

10:18:48	250	68	187	129	30	76	31	49	243	31	48	0	0	0	0	79	8
10:18:50	250	69	186	129	30	77	31	49	243	0	0	0	0	0	0	161	25
10:18:51	250	70	185	129	30	83	31	49	243	31	48	0	0	0	0	106	61
10:18:52	250	71	184	129	30	88	31	49	243	0	0	0	0	0	0	164	12
10:18:53	250	68	187	129	30	93	31	49	244	31	48	0	0	0	0	223	46
10:18:55	250	69	186	129	30	97	31	49	243	0	0	0	0	0	0	244	216
10:18:56	250	70	185	129	30	103	31	49	243	31	48	0	0	0	0	64	124
10:18:57	250	71	184	129	30	106	31	49	243	31	48	0	0	0	0	250	239
10:18:59	250	68	187	129	30	109	31	65	244	0	0	0	0	0	0	111	107
10:19:00	250	69	186	129	30	115	31	49	244	31	64	0	0	0	0	203	13
10:19:01	250	70	185	129	30	118	31	65	243	0	0	0	0	0	0	95	105
10:19:02	250	71	184	129	30	119	31	65	244	31	48	0	0	0	0	113	14
10:19:04	250	68	187	129	30	119	31	49	244	0	0	0	0	0	0	254	77
10:19:05	250	69	186	129	30	119	31	65	244	31	48	0	0	0	0	241	10
10:19:06	250	70	185	129	30	119	31	49	243	0	0	0	0	0	0	190	63
10:19:07	250	71	184	129	30	119	31	49	243	31	48	0	0	0	0	149	127
10:19:09	250	68	187	129	30	119	31	49	243	31	48	0	0	0	0	85	121
10:19:10	250	69	186	129	30	120	31	49	243	0	0	0	0	0	0	78	9
10:19:11	250	70	185	129	30	119	31	65	243	31	64	0	0	0	0	58	59
10:19:13	250	71	184	129	30	119	31	49	243	0	0	0	0	0	0	254	61
10:19:14	250	68	187	129	30	119	31	49	244	31	64	0	0	0	0	94	78
10:19:15	250	69	186	129	30	119	31	65	244	0	0	0	0	0	0	154	72
10:19:16	250	70	185	129	30	119	31	65	244	31	64	0	0	0	0	250	77
10:19:18	250	71	184	129	30	119	31	65	244	31	64	0	0	0	0	186	79
10:19:19	250	68	187	129	30	119	31	49	243	0	0	0	0	0	0	62	59
10:19:20	250	69	186	129	30	120	30	113	78	20	209	75	0	0	0	7	133
10:19:22	250	70	185	129	30	120	20	209	77	20	177	77	0	0	0	159	68

1E+06 =20*65536*209* 1E+06 =20*65536*177*256+77

Above BPM was changed to 180 with calibrator thus 333 ms

10:19:23	250	71	184	129	30	120	334	20	209	75	20	208	0	0	0	0	123	138
10:19:24	250	68	187	129	30	120	20	209	75	20	209	77	0	0	0	0	23	166
10:19:25	250	69	186	129	30	123	20	177	77	20	209	75	0	0	0	0	248	52
10:19:27	250	70	185	129	30	127	20	209	77	20	177	77	0	0	0	0	69	245
10:19:28	250	71	184	129	30	133	20	209	75	20	209	77	0	0	0	0	238	52
10:19:29	250	68	187	129	30	137	20	193	77	20	209	75	0	0	0	0	149	149
10:19:31	250	69	186	129	30	138	20	209	77	20	176	0	0	0	0	0	250	204

332 notice also multiple RRs

10:19:32	250	70	185	129	30	139	20	209	77	20	177	77	0	0	0	83	177
10:19:33	250	71	184	129	30	140	20	209	75	20	209	77	0	0	0	193	228
10:19:34	250	68	187	129	30	145	20	177	77	20	209	76	0	0	0	186	19
10:19:36	250	69	186	129	30	150	20	209	77	20	177	77	0	0	0	252	39
10:19:37	250	70	185	129	30	151	20	209	75	20	209	77	0	0	0	241	150
10:19:38	250	71	184	129	30	155	20	177	77	20	209	75	0	0	0	46	52
10:19:39	250	68	187	129	30	158	20	209	77	20	176	0	0	0	0	250	142
10:19:41	250	69	186	129	30	164	20	209	77	20	177	77	0	0	0	201	134
10:19:42	250	70	185	129	30	164	20	209	75	20	209	77	0	0	0	1	102
10:19:43	250	71	184	129	30	164	20	177	77	20	209	75	0	0	0	225	4
10:19:45	250	68	187	129	30	164	20	209	77	20	177	77	0	0	0	137	132
10:19:46	250	69	186	129	30	164	20	209	75	20	209	77	0	0	0	193	96
10:19:47	250	70	185	129	30	164	20	177	77	20	208	0	0	0	0	133	44
10:19:48	250	71	184	129	30	164	20	193	77	20	209	75	0	0	0	197	3
10:19:50	250	68	187	129	30	164	20	209	77	20	177	77	0	0	0	137	132
10:19:51	250	69	186	129	30	164	20	209	75	20	209	77	0	0	0	193	96
10:19:52	250	70	185	129	30	164	20	177	77	20	209	75	0	0	0	161	6
10:19:54	250	71	184	129	30	164	20	209	77	20	177	77	0	0	0	73	130
10:19:55	250	68	187	129	30	164	20	209	75	20	208	0	0	0	0	45	72
10:19:56	250	69	186	129	30	164	20	209	75	20	209	77	0	0	0	193	96
10:19:57	250	70	185	129	30	164	20	177	77	20	209	75	0	0	0	161	6
10:19:59	250	71	184	129	30	164	20	209	77	20	177	77	0	0	0	73	130
10:20:00	250	68	187	129	30	164	20	209	75	20	209	77	0	0	0	129	98
10:20:01	250	69	186	129	30	164	20	177	77	20	209	75	0	0	0	97	0
10:20:03	250	70	185	129	30	164	20	209	69	15	144	250	0	0	0	145	145
10:20:04	250	71	184	129	30	164	15	144	250	15	144	250	15	144	0	21	250

1E+06 =15*65536*144* 1E+06 =15*65536*144* 1E+06 =15*65536*144*256+0

Above BPM was changed to 240 with calibrator thus 250 ms

10:20:05	250	68	187	129	30	164	250	15	160	249	15	160	249	15	160	0	129	152
10:20:06	250	69	186	129	30	164	250	15	144	250	15	144	250	15	144	250	214	126
10:20:08	250	70	185	129	30	167	250	15	144	250	15	144	250	15	144	0	90	8
10:20:09	250	71	184	129	30	167	250	15	160	249	15	160	249	15	160	0	78	110
10:20:10	250	68	187	129	30	167	250	15	144	250	15	144	250	15	144	0	218	12
10:20:11	250	69	186	129	30	167	250	15	160	249	15	160	249	15	160	0	206	106
10:20:13	250	70	185	129	30	167	250	15	144	250	15	144	250	15	144	0	90	8
10:20:14	250	71	184	129	30	167	250	15	160	249	15	160	249	15	160	0	78	110