



F- and B-series FRWD Bluetooth Protocol

V1.03

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V1.01 document is based on “BT-protocol_26062006.xls” documentation
V1.02 added B-series ‘indoor-mode’ data transmission information
V1.03 added end mark hex values



FRWD BLUETOOTH TRANSMISSION GENERAL DESCRIPTION

Baudrate: 115.2kb

Note: Every five seconds the Recorder (F-/B-series) sends NMEA sentences GSV & GSA

1s	\$GPGSA,A,3,16,21,06,15,03,17,,,,,2.6,1.5,2.1*32
	\$GPGSV,3,1,10,21,67,169,18,16,55,246,43,06,34,120,17,15,29,218,39*75
	\$GPGSV,3,2,10,10,24,038,,03,20,280,32,18,15,160,,27,11,356,24*76
	\$GPGSV,3,3,10,29,10,079,,17,09,058,27*7B
	\$GPRMC,115739.969,A,6500.7823,N,02528.7252,E,0.00,,270105,,*10
	\$GPGGA,123519,4807.038,N,01131.000,E,1,08,0.9,545.4,M,46.9,M,,*47
	FRWD-packet*
2s	\$GPRMC,115740.969,A,6500.7823,N,02528.7252,E,0.00,,270105,,*1E
	\$GPGGA,123519,4807.038,N,01131.000,E,1,08,0.9,545.4,M,46.9,M,,*47
	FRWD-packet*
3s	\$GPRMC,115741.969,A,6500.7823,N,02528.7252,E,0.00,,270105,,*1F
	\$GPGGA,123519,4807.038,N,01131.000,E,1,08,0.9,545.4,M,46.9,M,,*47
	FRWD-packet*
4s	\$GPRMC,115742.968,A,6500.7823,N,02528.7252,E,0.00,,270105,,*1D
	\$GPGGA,123519,4807.038,N,01131.000,E,1,08,0.9,545.4,M,46.9,M,,*47
	FRWD-packet*
5s	\$GPRMC,115743.968,A,6500.7823,N,02528.7252,E,0.00,,270105,,*1C



	\$GPGGA,123519.4807.038,N,01131.000,E,1,08,0.9,545.4,M,46.9,M,,*47
	FRWD-packet*
6s	\$GPGSA,A,3,16,21,06,15,03,17,,,,,2.6,1.5,2.1*32
	\$GPGSV,3,1,10,21,67,169,18,16,55,246,43,06,34,120,17,15,29,218,39*75
	\$GPGSV,3,2,10,10,24,038,,03,20,280,32,18,15,160,,27,11,356,24*76
	\$GPGSV,3,3,10,29,10,079,,17,09,058,27*7B
	\$GPRMC,115739.969,A,6500.7823,N,02528.7252,E,0.00,,270105,,*10
	\$GPGGA,123519.4807.038,N,01131.000,E,1,08,0.9,545.4,M,46.9,M,,*47
	FRWD-packet*
7s...	\$GPRMC,115740.969,A,6500.7823,N,02528.7252,E,0.00,,270105,,*1E
	\$GPGGA,123519.4807.038,N,01131.000,E,1,08,0.9,545.4,M,46.9,M,,*47
	FRWD-packet*



FRWD SPECIFIC BLUETOOTH DATA PACKET DESCRIPTION (FRWD01 PACKET)

FRWD01 data packet specification

cryptated data	data used for checksum	string	string length	unit	Example	max value	NOTE
		HEADER	FRWD	4	none	FRWD	
	checksum	Packet ID number	xx	2	none	packet number (01)	99
	checksum	Recorder ID	xx	2	none	OB	- CHANGED
	checksum	Recorder Sw number	xxxx	4	none	0100	9999 CHANGED - (FB, means F-series with BT)
cryptated	checksum	current HR	xxx	3	bpm	089 (eq. 89 bpm)	999
cryptated	checksum	min HR	xxx	3	bpm	089 (eq. 89 bpm)	999
cryptated	checksum	avg HR	xxx	3	bpm	113	999
cryptated	checksum	max HR	xxx	3	bpm	165	999
cryptated	checksum	current speed	xxx(.)x	4	km/h	0011 (eq. 1.1km/h)	999.9
cryptated	checksum	min speed	xxx(.)x	4	km/h	0011 (eq. 1.1km/h)	999.9
cryptated	checksum	avg speed	xxx(.)x	4	km/h	0077 (eq. 7.7km/h)	999.9
cryptated	checksum	max speed	xxx(.)x	4	km/h	0153 (eq. 15.3km/h)	999.9
cryptated	checksum	distance	xxxxxx	6	m	001876 (eq. 1.876km)	999 999m
cryptated	checksum	meas.time	xxxxx	5	s	00120 (eq. 2:00min)	99999s (=27h)
cryptated	checksum	current alt	xxxxxx	6	m	-00001 (eq. -1m)	+99999m
cryptated	checksum	min alt	xxxxxx	6	m	-00001 (eq. -1m)	+99999m
cryptated	checksum	max alt	xxxxxx	6	m	+00800 (eq. +800m)	+99999m
cryptated	checksum	alt dif	xxxxx	5	m	00801 (eq. 801m)	99999m
cryptated	checksum	barometer	xxx(.)x	6	mbar	100431 (eq. 1004.31mbar)	9999.99mbar
cryptated	checksum	temperature	xxx(.)x	4	deg	1265 (eq. +26.5deg)	+99.9deg



crypted	checksum	RR1	xxxx	4	ms	750ms (=80bpm)	9999ms	Note: if value is 9999, hr beat not received
crypted	checksum	RR2	xxxx	4	ms	1000ms (=60bpm)		
crypted	checksum	RR3	xxxx	4	ms	250ms (240bpm)		
crypted	checksum	RR4	xxxx	4	ms	251ms (239bpm)		
		END-mark	*	1	none			
		checksum	xx	2	none			
		<CR>	x	1	none			hex 0x0D
		<LF>	x	1	none			hex 0x0A

total amount of chars:

93



B-SERIES INDOOR MODE BLUETOOTH DATA

When *FRWD B-series Recorder* is configured to operate as 'Indoor-mode' the *FRWD Recorder* sends same data over Bluetooth as configured to 'Outdoor-mode'.

However, the main differences are that:

1. NMEA-messages will always indicate that GPS-fix is unavailable (due the fact, that GPS -baseband processor's real time operation system's navigation task is shut down when *FRWD Recorder* is configured to operate as 'Indoor-mode').
2. The FRWD-message will include only Header and Heart Rate relative data (HEADER, Packet ID number, Recorder ID, Recorder Sw number, current HR, min HR, avg HR, max HR and RR1, RR2, RR3, RR4). All other data-fields are marked as zero. Please note, that baseband processor's barometer and temperature measurement tasks are shut down during Indoor-mode operation, so these data-fields are marked to zero also.



FRWD01 DATA PACKET DECRYPTION INSTRUCTIONS

DATA PACKET DECRYPTION

crypted
crypted

Crypted section of 8-bit string characters are all multiplied by 2

=> To decrypt crypted section, user must divide each character by 2