



Users Manual

# Wireless Data Link BFM01

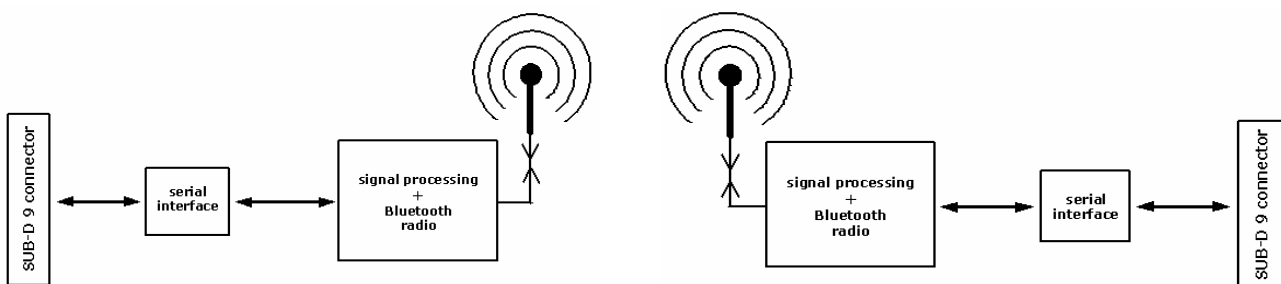


## BFM01

This sophisticated system is conceived as a wireless data link for the transmission of serial data, using the Bluetooth Standard. It can be configured by the manufacturer in various kinds of connection topologies. The BFM01 transceivers can not be adopted by third or other Bluetooth devices, excepted if a third device is paired by using the available configuration software. The BFM01 devices are offering a high grade of data security. Due to the application of 79 transmission channels in the frequency hopping mode with 1600 channel alternations per second, the systems offers a high grade of immunity against interferences. No influences by W-LAN devices according to IEEE 802.11b/g. The high radio frequency output power of +20dBm (100mWatts) is representing a good range performance.

The tiny housing offers lots of application possibilities, even when low space is available. The high RF output power utilizes a high grade performance. The units operate within the 2.4GHz ISM-Band, what means that those units can be used licence free and free of charge. All Bluetooth software stacks are already integrated and certified.

### 1. Block Diagram:



### 2. Installation

To get the highest possible performance of this system, the antenna respectively the unit must be mounted in an exposed position. Metal parts and reinforced concrete decrease the range of the system; high data rates, also. Electrical disturbances and other devices using carrier frequencies within the 2.4GHz ISM-Band can lead to block each other, in rare cases.

### 3. Power Supply

Ensure, that the power supply is uninterruptible and within the range of 7 to 30 Volts DC. A gap in the power supply leads to a loss of data. The power consumption depends on the data traffic. The max. power consumption is approx. 0.8 Watts.

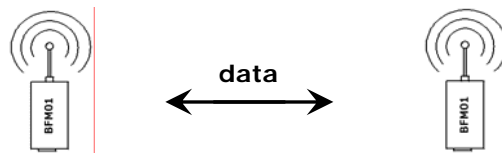
#### 4. Synchronising



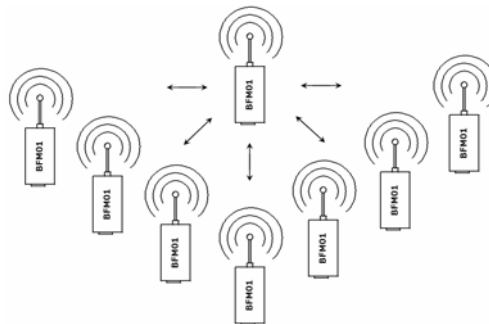
Right after supplying power, the units start to synchronise to each other. This process can take up to 30 seconds. During synchronising, the LED "LINK" shines red. After a successful synchronising, the LED "LINK" changes to green. If no subscriber is available, the unit changes into the standby modus, what is displayed by the orange LED "STBY".

#### 5. Topology examples

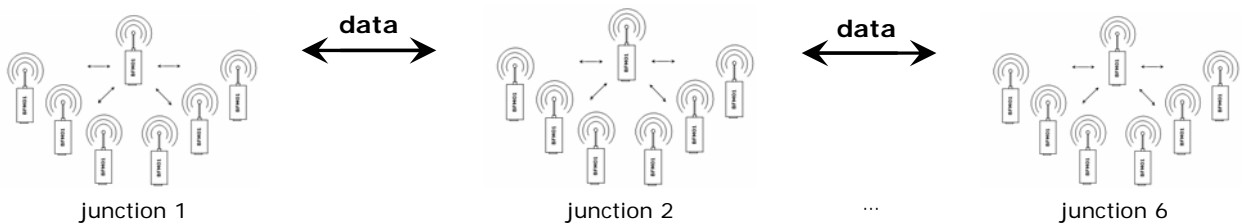
##### 5.1 Point-to-point:



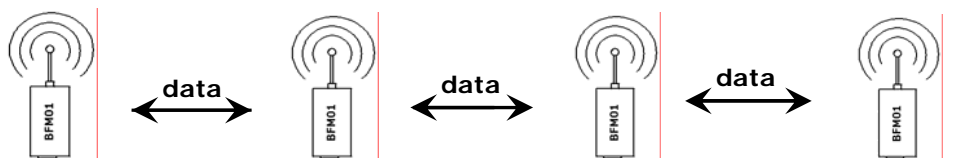
##### 5.2 Wireless multipoint:



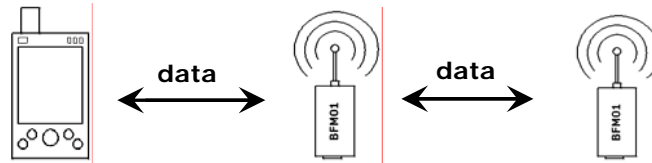
##### 5.3 Network with up to 6 junctions:



##### 5.4 Raising the range by employing a repeater:

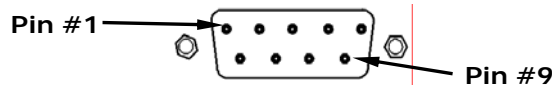


### 5.5 Connecting to other Bluetooth devices (for e. g. PDA, USB-Stick):



## 6. Pinout

### 6.1 Interface:



Device type	BFM01-0	BFM01-1	BFM01-2	BFM01-3
Interface type	RS232	RS422	RS485	TTY
Pin 1		TXD+	A	TXD+
Pin 2	RXD			
Pin 3	TXD	RXD-		RXD-
Pin 4	DTR			
Pin 5	GND	GND	GND	GND
Pin 6	DSR	TXD-	B	TXD-
Pin 7	RTS			
Pin 8	CTS	RXD+		RXD+
Pin 9	+Ub	+Ub	+Ub	+Ub
Voltage Level	+/- 12V	5V	5V	5V

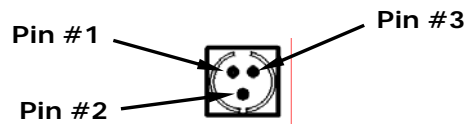
+Ub: optional input for power supply 7 – 30V DC.

### 6.2 Power Supply:

Pin #1 = GND

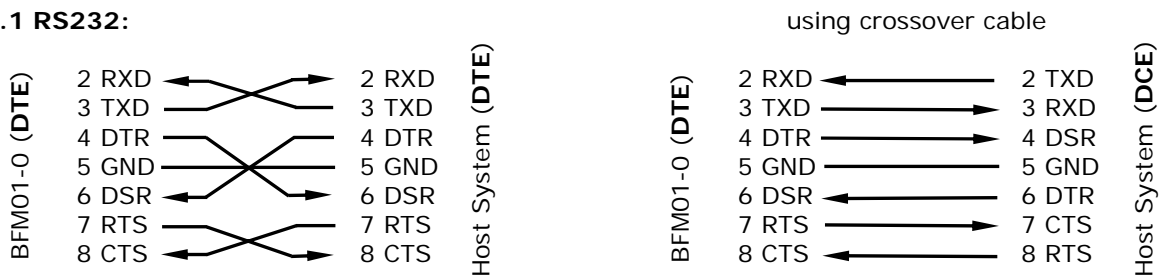
Pin #2 = +Ub

Pin #3 = not connected

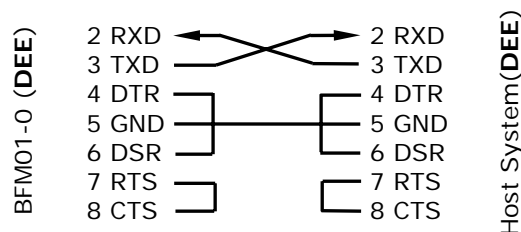


## 7. Interface wiring scheme

### 7.1 RS232:

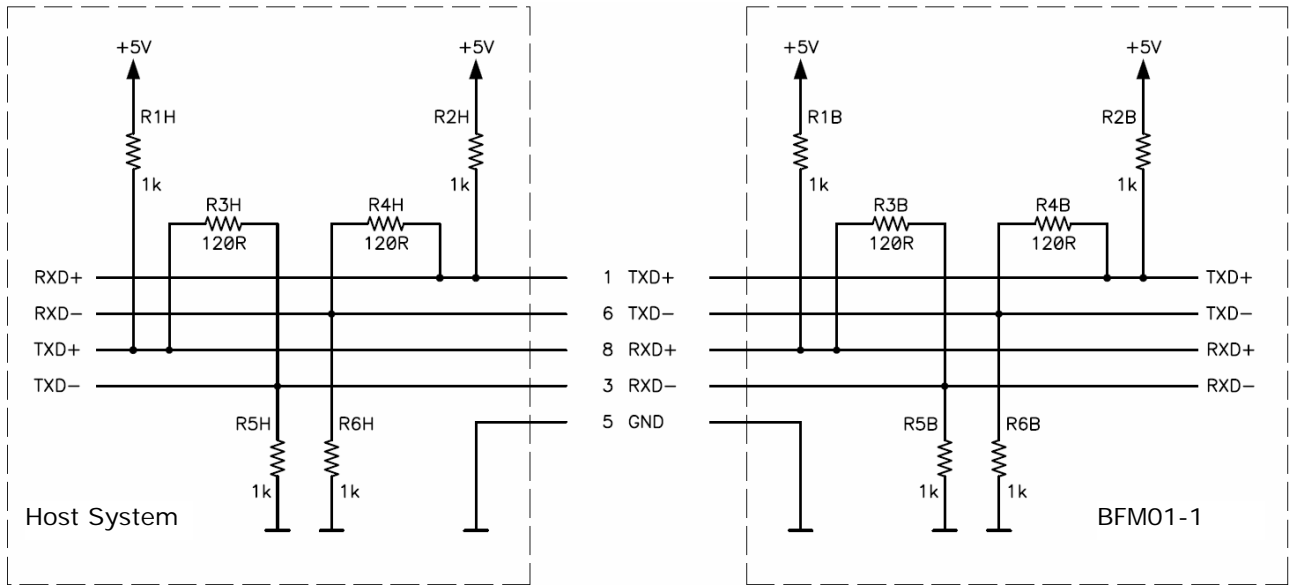


Asynchronous connection:

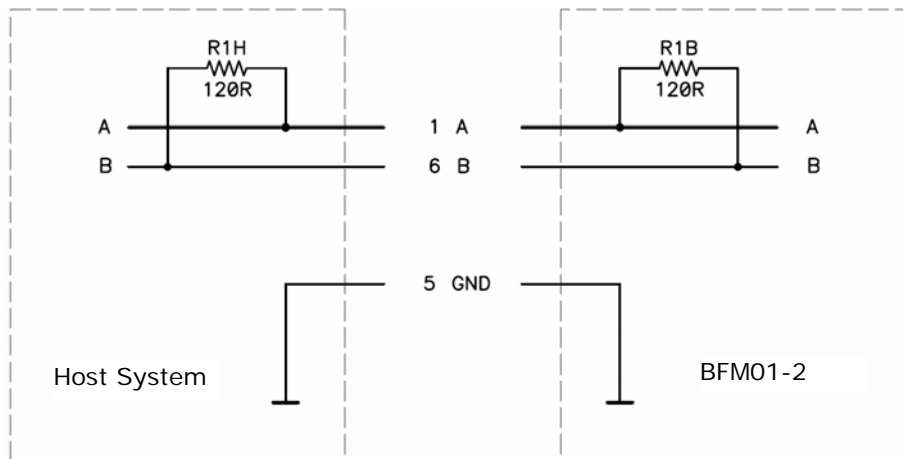


**7.2 RS422:**

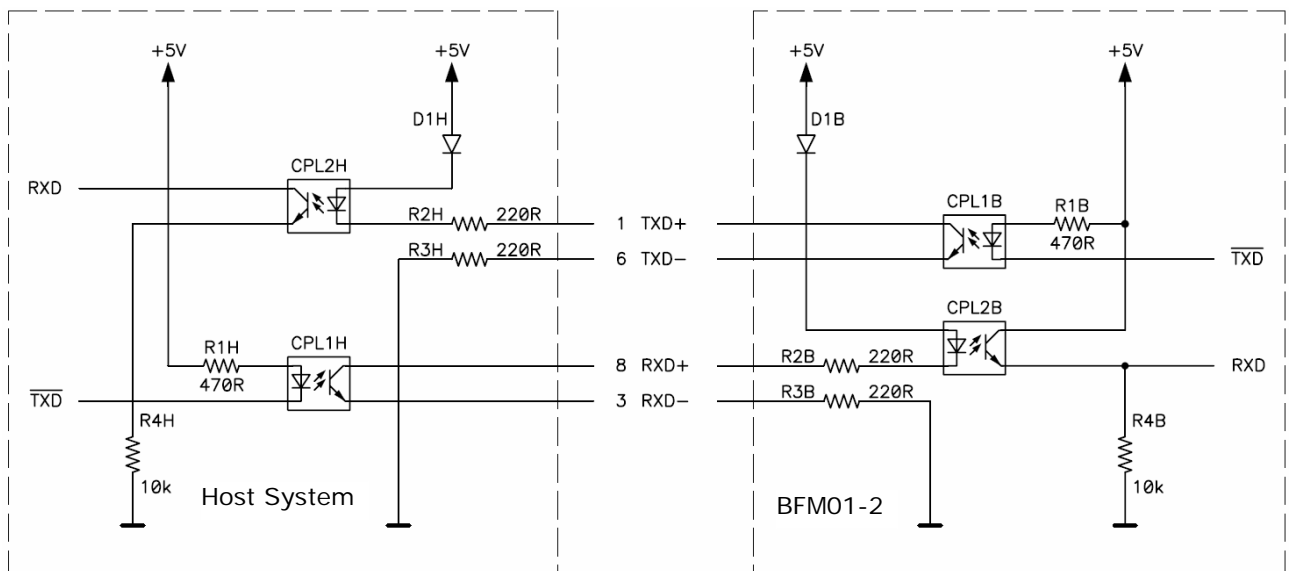
**SUB-D9 male connector**



**7.3 RS485:**



**7.4 TTY:**



**8. Technical Data:**

Technology:	Bluetooth Class 1, Qualification 2.0
Frequency:	2,402 – 2,480GHz, ISM-Band
RF-Channels:	79
Alternations per second:	1600
Max. Range:	approx. 250 meters in line of sight; also depending on data rate 50 – 100 meters (approx. 150 – 300 ft) inside buildings. Depending on the wall construction
Available Interfaces:	BFM01-0 RS232 BFM01-1 RS422 BFM01-2 RS485 BFM01-3 TTY
Used Protocol:	8 Data bits, no Parity, 1 Stop bit Transparent data mode or AT-commands
Baud rates:	300, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115,2k, 230,4k Other Baud rates on request; Baud rates can be selected by a configuration software
Handshake:	DTE (Hardware handshake) or DCE (no Handshake)
Profiles:	Serial Port Profile (SPP), Dial-up Networking Profile (DUN GW, DUN DT), Generic Access Profile (GAP)
Wireless Multi drop:	up to 7 subscribers can build a network; more junctions by cascading possible
Interface connector:	SUB-D 9 male connector
Power consumption:	max. 800mW
Voltage supply:	7 to 30V DC
Dimensions:	55 x 80 x 20mm (W x L x H), without connectors and antenna 2.17" x 3.15" x 0.79"
Weight:	115grams (without antenna)
Protection class:	IP50
Operating Temperature Range:	-25°C - +55°C (-13°F - +131°F)
Storage Temperature Range:	-30°C - +85°C (-22°F - +185°F)
Humidity:	5 – 90%, not condensing
Conformities:	EN 300 328-2 V1.1.1 EMC: EN 301 489 V1.3.1, EN 301 489 V17.1.1, EN 61000-6-2 Low Voltage Directive: EN 61131-2 Medical Electrical Equipment: IEC 60601-1-2
Type Approval:	ETS 300 328, ETS 300 826 FCC ID: PVH070201
Antenna with knee:	L = 100mm (3.94")
Puck antenna:	Ø = 70mm (2.76"); cable length = 3,00m (118")
Notice:	on basis of the type approval, it is strictly forbidden to use other antenna types as those types offered by Techeon Mechatronics And Wireless.
RoHS:	Our products are conform to RoHS
WEEE-Registration No:	DE 64490879

**9. Ordering information:**

Purchase Orders:    The units were delivered in configuration with customers needs

Wireless Data Link System BFM01-0 (RS232-Interface):	part No. 100.000.00
Wireless Data Link System BFM01-1 (RS422-Interface):	part No. 100.000.10
Wireless Data Link System BFM01-2 (RS485-Interface):	part No. 100.000.20
Wireless Data Link System BFM01-3 (TTY-Interface):	part No. 100.000.30
$\lambda/2$ antenna (with knee, 100mm length):	part No. 100.001.00
Puck antenna ( $\varnothing$ 70mm):	part No. 100.002.00
Antenna extension cable; 1m/39.37" length; SMA connectors:	part No. 101.002.00
Wall outlet power supply 12V 250mA:	part No. 100.003.00
9 pole Sub-D cable, 1:1 connected, 2,0m grey:	part No. 100.004.00
9 pole Sub-D cross link cable 2,0m grey:	part No. 100.005.00
Mounting Kit (3 holders and screws):	part No. 100.006.00
Bluetooth USB-Stick	part No. 100.007.00
Power connector (3 poles):	part No. 300.001.00



**BFM01 with  
Mounting Kit**



**$\lambda/2$ -antenna with knee**



**Puck antenna  $\varnothing$  70mm  
Cable length = 3.00 meters**



**USB-Stick**

Pictures are not true to scale!

Technical changes reserved!