

HEXIWEAR BLUETOOTH SPECIFICATIONS

1. BLE ADVERTISING DATA

Generic Access Profile

Data Type	Data Type Name	Data Value	Details
0x09	Complete Local Name	"HEXIWEAR"	Consider this.
0x01	Flags	0x06	LE General Discoverable Mode & BR/EDR Not Supported

2. BLE SIG SERVICES

1) Generic Access:

UUID: 0x1800

Service Specifications

UUID	Characteristic	Format	Security Mode	R/W permissions	Details
0x2A00	Device Name	UTF-8 string	None	Read	Consider: "HEXIWEAR"
0x2A01	Appearance	16bit	None	Read	Consider: 512 (Generic Tag)
0x2A04	Peripheral Preferred Conn Parameters	uint16[4]	None	Read	Think about suitable values.

2) Device Information Service (DIS):

UUID: 0x180A

[Service Specifications](#)

[Service Overview](#)

UUID	Characteristic	Format	Security Mode	R/W permissions	Details
0x2A29	Manufacturer Name String	UTF-8 string	None	Read	Represent the name of the manufacturer of device ("Mikroelektronika")
0x2A27	Hardware Revision String	UTF-8 string	None	Read	Represents the hardware revision for the hardware within the device ("1.0.0")
0x2A26	Firmware Revision String	UTF-8 string	None	Read	Represents the firmware revision for the firmware within the device ("1.0.0")

3) Battery Service (BAS):

UUID: 0x180F

[Service Specifications](#)

[Service Overview](#)

UUID	Characteristic	Format	Security Mode	R/W permissions	Details
0x2A19	Battery Level	uint8	None	Read Notify	Battery level as a percentage from 0% to 100%.

3. BLE CUSTOM SERVICES

1) Motion Service:

UUID: 0x2000

Sensors used for measurement: FXOS8700CQ (accel/magnet), FXAS21002 (gyro).

UUID	Characteristic	Format	Security Mode	R/W permissions	Details
0x2001	Accelerometer	int16_t[3]	Encryption with authentication	Read	Accel measurement for x, y, z coordinate. Range: +/- 4g
0x2002	Gyro	int16_t[3]	Encryption with authentication	Read	Gyro measurement for x, y, z coordinate. Range: +/- 256 deg/seg.
0x2003	Magnetometer	int16_t[3]	Encryption with authentication	Read	Magnet measurement for x, y, z coordinate.

Note:

-Characteristics values for accel and magnet coordinates are measured values multiplied by 100 (e.g. if measured value for accel is 3.25g, characteristic value will be 325).

2) Weather Service:

UUID: 0x2010

Sensors used for measurement: MPL3115A2 (pressure/temp), HTU21D (humidity/temp).

UUID	Characteristic	Format	Security Mode	R/W permissions	Details
0x2011	Ambient Light	uint8_t	Encryption with authentication	Read	Level of light (percentage)
0x2012	Temperature	int16_t	Encryption with authentication	Read	Temperature measurement (Celsius)
0x2013	Humidity	int16_t	Encryption with authentication	Read	Humidity measurement (percentage)
0x2014	Pressure	int16_t	Encryption with authentication	Read	Pressure measurement (Pascal)

Note:

-Characteristics values for temperature, humidity and pressure are measured values multiplied by 100 (e.g. if measured value for humidity is 42.3%, characteristic value will be 4230).

3) Health Service:

UUID: 0x2020

UUID	Characteristic	Format	Security Mode	R/W permissions	Details
0x2021	Heart Rate	uint8_t	Encryption with authentication	Read	Heart Rate value (beats per minute)
0x2022	Steps	uint16_t	Encryption with authentication	Read	Number of steps measured by pedometer
0x2023	Calorie	uint16_t	Encryption with authentication	Read	Value of kcal

4) Alert/Command Service:

UUID: 0x2030

Used for exchanging alerts/notifications and commands between phone and watch.

UUID	Characteristic	Format	Security Mode	R/W permissions	Details
0x2031	Alert In	uint8_t[20]	Encryption with authentication	Read Write with response	Used for sending alerts and commands from phone to watch.
0x2032	Alert Out	uint8_t[20]	Encryption with authentication	Read Notify	Used for sending alerts and commands from watch to phone .

First byte of characteristic value array define which application or properties we target on HEXIWEAR.

-Alert In packets:

Action	Description	1 st byte (Type)	2 nd byte (Length)	3 rd -20 th byte (Data)
Time update	Send current time in seconds since 1970	3	4	Time. Length 4 bytes.
Notifications	Send number of unread notifications from Android app	1	Notification category: -Missed call (2) -Social (4) -Email (6)	Number of unread notifications (refers to the category defined by the 2 nd byte). Length 1 bytes.

5) Application Mode Service:

UUID: 0x2040

Used to inform about current device working mode.

UUID	Characteristic	Format	Security Mode	R/W permissions	Details
0x2041	App mode	uint8_t	Encryption with authentication	Read Notify	Device working mode

Possible Device working mode values:

Value	Mode	Available data
0	Idle	None
2	Sensor Tag	Battery, Accelerometer, Magnetometer, Gyro, Temperature, Humidity, Pressure, Light
5	Heart Rate	Heart Rate
6	Pedometer	Pedometer (Steps, Calorie)